

TESTING THE JOB DEMANDS-RESOURCES MODEL ON NURSES

Elzette Nell



*Thesis submitted in partial fulfilment of the requirements
for the degree of Masters of Commerce (Industrial Psychology) in the Faculty of Economic
and Management Sciences at Stellenbosch University*

Supervisor: Dr. Billy Boonzaier

March 2015

PLAGIARISM DECLARATION

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ABSTRACT

The South African health care system is tormented by various challenges ranging from income inequalities, extreme resource scarcities to discrimination and violence. This makes the health care industry a tough work environment for health care personnel to operate in. South Africa has experienced the loss of thousands of nurses over the past decade, either emigrating or leaving the nursing profession altogether (Tshitangano, 2013). Consequently, this trend drew the attention to the well-being of nurses in South Africa.

The primary objective of this study was to investigate the level of work engagement among private sector nurses in the Western Cape, together with their levels of job demands, job resources, personal resources, performance and job crafting. This was done using the Job Demands-Resources model (JD-R) of work engagement. The comprehensive JD-R model was tested and the validity of the proposed relationships between the constructs was examined. Moreover, additional paths in the model were proposed and tested. Managerial implications along with practical interventions were derived from the results with the aim to increase nurse well-being and retention.

An *ex post facto* correlational design was used to test the formulated hypotheses in this research study. Quantitative data were collected from 311 nurses employed by a private hospital group by means of non-probability convenience sampling. A self-administered paper copy survey was distributed to hospitals given that they agreed to participate in the research. The survey was voluntary, anonymous and confidential. The survey consisted of five sections and included questions from five existing questionnaires, namely, the Utrecht Work Engagement Scale (UWES-17) (Schaufeli & Bakker, 2003), the Job Demands-Resources Scale (Rothman, Mostert & Strydom, 2006), the Work Design Questionnaire (Morgeson & Humhrey, 2006), the Psychological Capital Self-Rated Version (PsyCap-24) (Luthans, Avolio, Avey & Norman, 2006), and the Job Crafting Scale (Tims, Bakker & Derks, 2012). In order to test the statistical significance of the hypotheses, the data were subjected to Structural Equation modelling and regression analyses.

The results indicated that the nurses experienced a high level of work engagement, and elucidated the fact that job resources, job demands, and job crafting aspects of their jobs are in need of industrial psychologist or managerial interventions.

OPSOMMING

Die Suid-Afrikaanse gesondheidsstelsel word geteister deur verskeie uitdagings wat onder andere inkomste ongelykheid, ekstreme hulpbronskarciteit, diskriminasie en geweld insluit. Dit maak die gesondheidsindustrie 'n moeilike werksomgewing vir gesondheidspersoneel om in te werk. Suid-Afrika het duisende verpleegsters oor die laaste dekade verloor as gevolg van emigrasie, terwyl ander die professie in geheel verlaat het (Tshitangano, 2013). Gevolglik het hierdie tendens die aandag getrek na die welstand van verpleegsters in Suid-Afrika.

Die primêre doel van hierdie studie was om die vlak van werksbetrokkenheid onder 'n steekproef van privaatsektor verpleegsters in die Wes-Kaap te ondersoek, tesame met hulle vlakke van werkseise, werkhulpbronne, persoonlike hulpbronne, werksprestasie en posverryking. Die *Job Demands-Resources model (JD-R) of work engagement* is vir hierdie doel ingespan. Die omvattende model tesame met die geldigheid van die voorgestelde verhoudings tussen die konstrakte is getoets. Addisionele verhoudings is ook voorgestel en getoets. Bestuursimplikasies en praktiese intervensies is van die resultate afgelei en word aan bestuurders voorgelê as moontlike oplossings om verpleegsters se welstand en retensie te verhoog.

'n *Ex post facto* korrelasie-ontwerp is gebruik om die geformuleerde hipoteses in hierdie studie te toets. Kwantitatiewe data is van 311 verpleegsters ingesamel wat deur 'n private hospitaalgroep in diens geneem word. Nie-waarskynlikheid gerieflikheidssteekproeftrekking is gebruik om die steekproef te bepaal. 'n Self-gedadministreerde vraelys is ontwikkel en as harde kopie uitgestuur na dié hospitale wat ingestem het om aan die navorsing deel te neem. Die vraelys is vrywillig, anoniem en konfidensieel ingevul en het uit vyf seksies bestaan. Die vyf seksies se vrae is opgemaak uit verskeie bestaande vraelyste, naamlik, die *Utrecht Work Engagement Scale (UWES-17)* (Schaufeli & Bakker, 2003), die *Job Demands-Resources Scale* (Rothman, Mostert & Strydom, 2006), die *Work Design Questionnaire* (Morgeson & Humphrey, 2006), die *Psychological Capital Self-Rated Version (PsyCap-24)* (Luthans, Avolio, Avey & Norman, 2006), en die *Job Crafting Scale* (Tims, Bakker & Derks, 2012). Ten einde die statistiese beduidendheid van die hipoteses te toets, is die data deur strukturele vergelykingsmodellering en regressie-ontledings ontleed. Die resultate dui daarop dat die verpleegsters 'n hoë vlak van werksbetrokkenheid ervaar, en dat werkhulpbronne, werkseise en posverrykende aspekte van hulle werk bestuurs- of bedryfsielkundige intervensies verlang.

ACKNOWLEDGEMENTS

First and foremost, to my Heavenly Father that provided me with the daily energy and perseverance to complete this thesis. He gave me the opportunity, motivation and blessing to follow through with this study.

I would like to express my sincere gratitude and thanks toward the following people that contributed to this study:

To my supervisor, Dr. Billy Boonzaier, for his continuous guidance, motivation, and encouragement. His input, patience, and insights were invaluable to me. Dr. Boonzaier was not only a supervisor, but also a personal mentor that has guided me through my academic years and endeavours. I will be forever grateful for the role that he has played in my life.

To the hospital group that was prepared to help me with the data gathering. You assisted me greatly.

To my parents, Ian and Judy Nell, that have always believed in my abilities and encouraged me every step of the way. They have afforded me the privilege of higher education and I would not have been able to complete this study without their support and motivation.

To Meriska Bock, for her sincere interest and support.

To Emile Strasheim, for all his love and care.

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CHAPTER 1

BACKGROUND TO THE STUDY

1.1 INTRODUCTION

South Africa has a dual health care system. The public health care sector serves 80% of the population, while the private sector serves 20% (Klopper & Coetzee, 2013). The health care system is plagued by many challenges. Most of these have historical roots that can be traced back to poverty and income inequality caused by South Africa's troubled past. A study by Coovadia, Jewkes, Barron, Sanders and McIntyre (2009) sketch the context of the South African health care system and conclude that the main problems and challenges are as follows: unfair discrimination; vast income inequalities; extreme violence; failures in leadership; weak management; inadequate implementation of good policies; a substantial human resources crisis; and concurrent epidemics such as HIV/AIDS. It is therefore not surprising that "although South Africa is considered a middle-income country in terms of its economy, it has health outcomes that are worse than those in many lower income countries" such as Peru, Morocco and Nepal (Coovadia et al., 2009, p. 1). Without a doubt, the health care system creates a difficult environment for health care professionals to operate in. In particular, the nursing sector faces many obstacles.

According to an article on the Health Systems Trust website (Comins, n.d.), thousands of skilled nurses emigrate each year. Affirmative action and crime were initially identified as the main driving forces that caused many nurses to leave South African shores, but today many other factors contribute to this massive brain drain in the nursing sector. Lucrative financial packages, relocating costs and improved working conditions are some of the factors that attract nurses. Many of the nurses that have left South Africa, point out the first-rate technology that they get to work with and how they have the chance to give proper care to patients. Although one would expect that public sector nurses would be more likely to emigrate due to harsh conditions, it was found that the proportion of public and private sector nurses that were leaving was even. Tshitangano (2013, p. 1) reported that in 2000 to 2001 alone, South Africa lost 2000 registered nurses, and a further 300 were leaving every month. As a result, 32 000 registered nurse vacancies were available in 2010, of which Limpopo province had the biggest shortage.

Klopper and Coetzee (2013) gave a presentation at the second South African Nurses Conference in 2013 on nurse workforce outcomes. They reported that the following factors caused massive problems in the nursing sector:

- Major resource shortages;
- Understaffing in hospitals and clinics;
- High levels of burnout among nurses;
- Low job satisfaction due to poor work scheduling, low advancement opportunities, low wages, and few educational opportunities;
- High levels of intentions to quit within the next year (57% of public sector nurses and 49% of private sector nurses);
- Quality and safety issues at hospitals (even patient safety);
- Verbal and physical abuse from patients, families of patients, and staff.

A study by Tshitangano (2013) investigated the factors that contributed to nurse turnover in the Limpopo province and reported similar findings to those presented by Klopper and Coetzee (2013). South Africa was found to be one of the top three countries with the highest percentage of nurses that intended to leave. The optimal nurse-to-patient care ratio is 1:4 (Klopper & Coetzee, 2013). The study by Tshitangano (2013) found that this ratio was sometimes as high as 1:40 in the Limpopo province.

Evidently massive nurse shortages exist in South Africa. This makes nurse retention a very real problem for the nursing sector. Mokoka, Oosthuizen and Ehlers (2010) asked nurse managers to describe factors that they thought could influence professional nurse retention. The factors that the nurse managers came up with among others were long and inconvenient working hours; poor working conditions; uncompetitive salaries; unsafe working environments; low levels of professional development of nurses; and a lack of resources that threatens the safety and well-being of nurses and patients. All these factors cause nurses to experience low job satisfaction, high levels of occupational stress, and burnout which cause them to either emigrate to other countries or to totally leave the nursing profession.

Personal communication with a manager at a well-established privatised hospital group in South Africa pointed out factors that cause the private nursing sector's many problems. He explained that the private sector had to compete with the higher salaries that the government offers. Consequently, many nurses apply for jobs at government hospitals and leave the private sector, despite the fact that the private sector offers better benefits. Another major

problem is the fact that the government closed down several nurse-training colleges over the last couple of years (Nxumalo, 2012; Solidarity, 2011). This has contributed to the massive nurse shortage in South Africa and has forced many of the privatised hospital groups to develop and invest in their own training programs. Unfortunately, during the period where these training initiatives were in their development stage, the private sector experienced an enormous backlog where no nurses were trained. As a result, the privatised hospital groups had to implement a short term plan that could alleviate the nurse shortage. The short-term solution that they came up with was to recruit nurses from India (also reported by online sources: Comins, 2008; Nyanda, 2014). This created a degree of resistance from the South African nurses that were already employed by the groups, because they had to assist the Indian nurses when they first arrived in South Africa. The manager explained that even in the privatised hospital group where he works, the nurses complain of long and inconvenient work hours, high job demands, high levels of stress, and feelings of overwork.

Overall, one can conclude that the nursing environment is tough and worsening. Many demands and external factors affect the well-being of nurses. The fact that only one nurse is available for every 216 South Africans (Solidarity, 2011), emphasises the fact that nurses and their skills are a scarce resource. Nurses perform important work that literally saves lives. At the unveiling event of the National Strategic Plan for Nurse Education, Health Minister Dr Motsoaledi called nurses the “backbone of the health care system” (Khumalo, 2013). It is paramount that the public and private nurse sectors investigate and invest in the motivation and well-being of the nurses in South Africa.

One comprehensive model that could be used to investigate the well-being of nurses is the Job Demands-Resources (JD-R) model of work engagement. This model has been applied to various occupational groups to determine how job demands, job resources, and personal resources interact to determine work engagement and how work engagement in turn drives performance and job crafting behaviour. The underlying assumption of the JD-R model is that every occupation has “its own specific risk factors associated with job stressors” (Bakker & Demerouti, 2007, p. 312), which makes it ideal to apply to the nursing sector. This theoretical model was developed based on the outcomes of various independent engagement studies, but also built on the assumptions of other job stress models situated in the occupational health literature (Bakker, 2011). The JD-R model attempted to address the shortcomings of similar models, for example their simplicity and inability to be applied to various job positions (Bakker & Demerouti, 2007). The JD-R model also aimed to expand these models by

including additional variables such as personal resources. This model is therefore a very useful tool to assess the presence of the abovementioned factors (work engagement etc.) in order to determine where the nursing sectors needs to improve their processes, or provide further training for nurses. The advantage of using an established theoretical model to determine nurses' level of job demands, job resources, personal resources, work engagement, performance and job crafting, is that the data would provide a source of information that could justify Human Resource (HR) development interventions. Evidence-based HR management decisions can be made on the grounds of practical information to address the waning well-being of nurses with the aim to improve their retention in the sector.

Extensive research has been done within the diagnostic paradigm with regards to job resources, job demands and burnout. However, the need for research from the perspective of the positive psychology paradigm, and thus personal resources as drivers of engagement, is much needed. Schaufeli and Bakker (2004, p. 293) have argued this point with substantive evidence, stressing the importance of the elaboration on work engagement research from a positive perspective:

Negative emotions outnumber positive emotions by a ratio of 14 to 1. The same is true for occupational health psychology: a simple count of articles that appeared from 1996 onwards in the Journal of Occupational Health Psychology reveals that negative work-related outcomes outnumber the positive outcomes by a comparable ratio of 15 to 1. So, it is not surprising that the emerging positive psychology proposes a shift from this traditional focus on weaknesses and malfunctioning towards human strengths and optimal functioning (Seligman & Csikszentmihalyi, 2000). A similar switch from burnout towards its opposite – engagement - has recently been put forward by Maslach, Schaufeli, and Leiter (2001).

A global trend to focus on what is 'right' (i.e. strengths, capacities and skills of nurses) and how these strengths can be further developed, is emerging. The focus should be on how to develop what nurses already have rather than to focus on the deficits of the sector.

The authors of the JD-R model extended an invitation to researchers in a special edition article to expand on the body of research of personal resources (Demerouti & Bakker, 2011). Researchers have started to explore the relationships of certain personal resources, such as optimism, hope, resilience, and self-efficacy with work engagement. It was found that

optimism and self-efficacy had significant positive relationships with engagement (Herbert, 2011).

1.2 RELEVANCE OF THE STUDY

The relevance of the study is twofold, namely practical and theoretical. The practical relevance of the study is to investigate nurses' levels of job demands, job resources, personal resources, work engagement, performance and job crafting behaviour with the aim to provide solid evidence to a privatised hospital group. The group could use this information to determine which of the abovementioned factors pose problems within their nursing environment. Furthermore, this information can then be used to invest in evidence-based HR development interventions of the respective problematic factors that could potentially help to increase nurse retention within their hospitals. Lastly, the nursing sector is in need of research on positive and developable constructs, such as personal resources, instead of placing the focus on psychological 'deficient' constructs, such as stress and intention to leave (that we already know are present).

The theoretical relevance of this study is that it will comprehensively test the JD-R model and its working. Due to its extensive nature, this model has repeatedly been broken up into components with each component being tested separately. Yet, not one study was found that has tested the model in its entirety. More than thirty years ago, Gordon, Kleiman, and Hanie (1978, p. 901) argued for the importance of elaborating and integrating existing knowledge on a certain topic:

The short-lived interest that industrial-organizational psychologists display in their work promotes severe intellectual disarray. Lack of commitment to thorough exploration of a subject is inimical to the creation of viable psychological theory. By continuing to ignore the integrative role of theory, industrial-organizational psychologists are likely to share a fate that Ring (1967) forecast for social psychologists: We approach our work with a kind of restless pioneer spirit: a new (or seemingly new) territory is discovered, explored for a while, and then usually abandoned when the going gets rough or uninteresting. We are a field of many frontiersmen, but few settlers. And, to the degree that this remains true, the history of social psychology will be written in terms not of flourishing interlocking communities, but of ghost towns.

This dissertation agrees with that sentiment and aims to create a comprehensive usage study of the entire JD-R model in a practical context. Lastly, the researcher also aims to investigate additional paths that can be explored within the existing JD-R model, paths that have not been investigated previously.

1.3 RESEARCH INITIATING QUESTION

Although the JD-R model has provided an understanding of significant personal resources and job resources as drivers of motivation and engagement, the current study raises the question of why variance in work engagement exists between different nurses in different hospitals. The effects of salient job resources, personal resources and job crafting on work engagement and performance will consequently be tested. The research question is therefore formulated as follows:

“Do the constructs in the Job Demands-Resources model account for significant variance in the work engagement of nurses?”

1.4 OBJECTIVES OF THE STUDY

- Test the comprehensive JD-R model and the validity of the proposed relationships between the constructs.
- Propose additional paths in the JD-R model.
- Determine the levels of job demands, job resources, personal resources, work engagement, performance and job crafting of a sample of private sector nurses.
- Highlight the results and managerial implications of the research findings and recommend practical interventions to the privatised hospital group that could increase or decrease the respective constructs with the aim to increase nurse retention.

1.5 DELIMITATIONS

The primary objective of this research study is to determine whether the constructs in the JD-R model account for significant variance in work engagement of nurses. The JD-R model (Demerouti, Bakker, Nachreiner & Schaufeli, 2001) is used to investigate the motivational process of the model and its outcomes, namely work engagement and job performance. The study therefore places the emphasis on human strengths and optimal functioning. The present study did not follow the traditional paradigm that highlights weaknesses and malfunctioning and consequently did not consider the health impairment process (with outcomes such as

burnout and occupational stress) that can also be explained by the JD-R model. The focus of this study is therefore situated within positive psychology and focuses on work engagement, and not burnout.

The study concentrates on the paths stipulated in the JD-R model and proposes and tests two additional paths. Attention is not given to the sub-components of the constructs or hypotheses related to the sub-components. For example, although work engagement consists of three sub-dimensions, namely vigour, dedication and absorption, no individual hypotheses are stated that would test the relationship between the sub-dimensions and, for example, job performance. The reason for this being that the focus is not on hypotheses related to sub-components of the constructs in the JD-R model, but rather on the constructs as a whole and how they relate to each other. Also, specifying too many paths, especially when they serve no particular reason, could lead to a model that will not converge when subjected to testing in statistical programs. In conclusion, no specific hypotheses are tested regarding the relationships between the sub-components of the constructs within the JD-R model.

1.6 IMPORTANCE AND CONTRIBUTIONS OF THE STUDY

As has been noted, the number of studies that focused on the negative work-related outcomes drastically outnumbers the studies that have focused on positive outcomes. This study, however, focuses on a positive work-related outcome and will consequently contribute to the body of knowledge on positive work-related outcomes. This study will also contribute to the literature on work engagement, in the sense that it will test the JD-R model in one research inquiry, as opposed to the norm where researchers tend to only focus on certain parts of the model.

Moreover, the study investigates paths within the model that, to date, have received little focus and therefore limited evidence to support the inclusion thereof. The researcher also proposes the inclusion of two additional paths in the model. These paths may prove to be important in the explanation of how the JD-R model works. Lastly, the study investigates the condition of work engagement among Western Cape nurses in private hospitals with the goal of providing relevant and implementable interventions to address and improve work engagement problems.

1.7 OUTLINE OF RESEARCH STUDY

Chapter 1 provides an overview of the health care system and nursing sector in South Africa. This is followed by a discussion on how the Job Demands-Resources (JD-R) model can be applied to investigate the work engagement and other relevant constructs of nurses in an attempt to increase their retention. The relevance of the research is discussed and the research objectives are outlined.

Chapter 2 comprises an in-depth literature review to satisfy the theoretical objective of the study. Each of the latent variables of interest is defined, explained and discussed in terms of existing academic literature. The relationships between these variables of interest are explored, and a theoretical model is developed to graphically portray the theorised relationships.

In Chapter 3 the methodology of this empirical, explanatory research study is presented. This includes a discussion of the research design, the research participants, the measuring instruments, missing values and statistical analyses. Furthermore, the substantive research hypothesis is outlined and the structural model is presented.

The results derived from the statistical analyses are reported and discussed in Chapter 4. The reporting of the results is done in the following order: item analysis, Confirmatory Factor Analysis (CFA), Structural Equation Modelling (SEM), and regression analyses related to certain hypotheses. The participant scores are discussed and the hypotheses are interpreted.

Lastly, managerial implications are highlighted in Chapter 5 and practical interventions are discussed. In addition, the limitations of this research study and recommendations for future research endeavours are outlined.

CHAPTER 2

LITERATURE STUDY

2.1 INTRODUCTION

The purpose of this chapter is twofold. Firstly, a literature review will investigate the relevant constructs of the study. The literature review will start with a short overview of previous job stress models from the occupational health and well-being literature from which the Job Demand-Resources (JD-R) model was developed. Thereafter, the constructs of the JD-R model will be theoretically defined and explained. Secondly, the relationships between the JD-R model's constructs will be explained, and consequently the hypotheses will be stated. This section will be concluded with a diagram of an elaborated version of the JD-R model.

2.2 OVERVIEW OF PREVIOUS JOB STRESS MODELS

The JD-R model incorporates various occupational health stress models that were previously used to evaluate the impact of job stressors and job characteristics on employee health and well-being. These models include the 1) *Demand-Control Model* (Karasek, 1979), 2) the *Effort-Reward Imbalance model* (Siegrist, 1996), 3) the *Job Characteristics Model* (Hackman & Oldham, 1976), and 4) the *Conservation of Resources model* (Hobfoll as cited in Bakker & Demerouti, 2007). The central assumption of these models is that job strain develops as job demands exceed coping resources needed to effectively deal with job demands (Bakker & Demerouti, 2007).

2.2.1 The Demand-Control Model

Karasek's (1979) Demand-Control Model (DCM) was one of the first theoretical frameworks developed to explain the impact of job strain on health and employee well-being in the face of high demands. The DCM's basic premise was that equilibrium between work-related health and well-being and job strain is maintained when job control and job demands are equal. The amount of control that a person has within his/her job acts as the balancing force against job demands.

Control refers to the degree to which individuals can determine how they want to meet the demands set by their jobs. Job control ultimately represents an employee's degree of decision latitude (Bakker, Van Veldhoven, & Xanthopoulou, 2010) which refers to job autonomy as it is known today. Job demands are aspects related to a specific job and work context that

require increased levels of energy to complete job tasks (Karasek, 1979). Job strain (such as work-related anxiety, dissatisfaction, and exhaustion) is therefore experienced when high job demands are paired with low control, in what is labelled 'high strain-jobs'. Contrarily, 'active learning-jobs' are the result of high job demands paired with high job control, which lead to personal growth, learning, and the enjoyment of tasks (Karasek, 1979). Both hypotheses were supported empirically in the studies mentioned. Only partial support was found for the hypothesis that job control could act as a buffer against job demands (Bakker & Demerouti, 2007).

One can infer that job control acts as a moderating variable that influences the relationship between job demands and job strain. Job control's inability to buffer the effect of job demands and the experience of strain is a significant weakness of the DCM's theoretical basis for the explanation of how job control functions (Bakker & Demerouti, 2007). The JD-R model addresses this shortcoming by including job control under the bigger umbrella component of job resources.

2.2.2 The Effort-Rewards Imbalance Model

The Effort-Rewards Imbalance Model (ERI) places emphasis on the ratio of effort to rewards rather than control (inherent to the work structure). This model provides an alternative theoretical approach for explaining work-related health and stress (Siegrist, 1996) and suggests that job strain is the result of an imbalance between effort exerted and rewards received. Effort represents the outcome of job demands paired with the intrinsic motivation to meet those demands, while rewards refer to the intrinsic and extrinsic motivators that drive effort (Bakker & Demerouti, 2007). The expected rewards associated with the effort employed act as behavioural drivers. Employee well-being is thus the product of the correlation and synthesis between effort exerted and rewards received.

This model differs from the previous one in the sense that it includes a personal component. An individual's personality can act as a moderator variable on the effort-reward relationship based on a person's motivational determinants and their perceived importance. Consistent with Latham and Locke's (2006) Goal-Setting Theory of motivation, personality determines the valence of rewards, and consequently the amount of energy harnessed to ensure the obtainment of those rewards (Bakker & Demerouti, 2007). The ERI's theoretical progress, in terms of the inclusion of a personal component, is one of the major contributing factors to the JD-R model.

The DCM and the ERI are both considered balance models that provide relatively simple explanations for the outcomes of work-related health and well-being issues (Bakker & Demerouti, 2007).

2.2.3 The Job Characteristics Model

Bakker and Demerouti (2014, p. 3) explain Hackman and Oldham's model as follows: "The Job Characteristics Model examines individual responses to jobs (e.g. job satisfaction, sickness, absenteeism, personnel turnover) as a function of job characteristics, moderated by individual characteristics". The core job characteristics contained in the Job Characteristics Model (JCM) are skill variety (the use of various skills at work), task identity (opportunity to complete an entire piece of work), task significance (perceived meaningfulness of work), autonomy (degree of independence), and feedback (amount of information provided by the work or supervisor regarding performance) (Hackman & Oldham, 1976).

Core job characteristics are thought to influence personal and work outcomes (such as internal work motivation, work performance, job satisfaction, absenteeism and turnover) through the attainment of three critical psychological states (Robbins & Judge, 2011). These states are experienced meaningfulness at work, experienced responsibility for outcomes, and knowledge of the results of work activities.

The JD-R model uses the job characteristics element of the JCM. Job characteristics can either be categorised as job resources or job demands within the JD-R model. For example, when a nurse receives good and regular feedback from a supervisor, this job characteristic has the potential to motivate the nurse. However, if the nurse never receives any feedback, this has the potential to demotivate the nurse and consequently the job characteristic will become an emotional demand. Although the JD-R model includes many more job characteristics than the five that were initially conceptualised within the JCM, the JCM developed a platform for evaluating job characteristics in terms of job resources or job demands.

2.2.4 The Conservation of Resources Model

According to Hobfoll's Conservation of Resources (COR) Model, employees have the need to obtain, conserve, and protect their resources. The COR model explains that employees use job resources to deal with threatening circumstances and protect themselves from negative outcomes (Xanthopoulou, Bakker, Demerouti & Schaufeli, 2007). Another important assumption of the model is that employees not only wish to protect current job resources, but also attempt to accumulate more. Hobfoll (as cited in Xanthopoulou et al., 2007, p. 123)

argues that resources tend to create more resources resulting in “resource caravans” that lead to positive work and personal outcomes, such as engagement, well-being, and increased coping.

The JD-R model incorporates this idea of resource caravans in the explanation of the cyclical interactions between personal resources, job resources, and work engagement and how these interactions tend to create more resources (Bakker, 2011). Employees thus utilise one form of resources to develop another which results in a positive gain spiral.

2.2.5 Summary

The above-mentioned models have each contributed in a unique way to the development of the JD-R model. According to Bakker and Demerouti (2007), these models were valuable in developing a foundation for the explanation of work-related health impairment and well-being. Table 2.1 summarises the unique contribution from each model that was discussed.

Table 2.1

Major Contributions of Previous Job Stress Models

Model	Contribution to the JD-R model
<i>Demands-Control Model</i>	Job strain develops when demands exceed job control
<i>Effort-Rewards Imbalance Model</i>	Inclusion of a personal component in stress models
<i>Job Characteristics Model</i>	Job characteristics are characterised as job demands or resources
<i>Conservation of Resources Model</i>	Develops the idea of resource caravans

Empirical research has the focus of expanding on older theories, addressing the shortcomings of existing theories, and producing new knowledge. Although the above-mentioned models each contributed to the body of knowledge on health-impairment and well-being literature, these models failed to address certain issues.

Bakker and Demerouti (2014) critique these models by highlighting the following points:

- a) These models are one-sided in the sense that they are either situated within the job stress tradition or in the motivational tradition. The models rarely address both these processes that occur simultaneously in reality.
- b) The models are simplistic and fail to acknowledge the complexity of well-being and health impairment phenomena by only addressing a few selected variables. Moreover, the models cannot be applied to a variety of different jobs and levels.

- c) The models have a static character. It is not clear why certain characteristics are considered to be extremely important within certain models; for example, the DCM considers autonomy to be the most significant resource for employees but does not clarify why it does so. Similarly, the JCM focuses exclusively on five job characteristics while it is not very difficult to think of alternative valuable characteristics.
- d) Jobs have a changing nature and adaptation to external contexts is crucial. The models fail to address changing work environments, such as the role of information technology and virtual workspaces. The models therefore can only be applied to 'typical' jobs of which the work characteristics are pre-defined and well known.

The restricted and oversimplified nature of some of the models limited their theoretical progress and practical usefulness. This was further problematised by the fact that some models could only be practically applied to specific work contexts and jobs. This is especially true of the DCM and the ERI models and many consider them obsolete in the modern work environment (Bakker & Demerouti, 2007). However, the theoretical basis of these models and their associated weaknesses provided a platform for the development of a new model, namely the JD-R model.

2.3 THE JOB DEMANDS-RESOURCES MODEL

According to Demerouti and Bakker (2011), the JD-R model is an overarching model which combines the positive and negative outcomes of employee health and well-being into one comprehensive model. The model therefore not only integrates various previous models related to these outcomes, but also combines two separate research traditions, namely the 'stress research tradition' and the 'motivational research tradition'. Whereas the previous models largely focused on the negative outcomes of job strain (stress research tradition), the JD-R model additionally accounts for positive outcomes of work-related health and well-being (motivational research tradition). The model was initially developed in 2001 by Bakker, Demerouti, Nachreiner and Schaufeli and has proven to be useful in the conceptualisation of well-being, work engagement, and performance (Janse van Rensburg, Boonzaier & Boonzaier, 2013). The model has developed so much over the last decade that meta-analytical studies are starting to emerge and the model is considered a theory (Bakker & Demerouti, 2014). Figure 2.1 shows the basic theoretical version of the JD-R model.

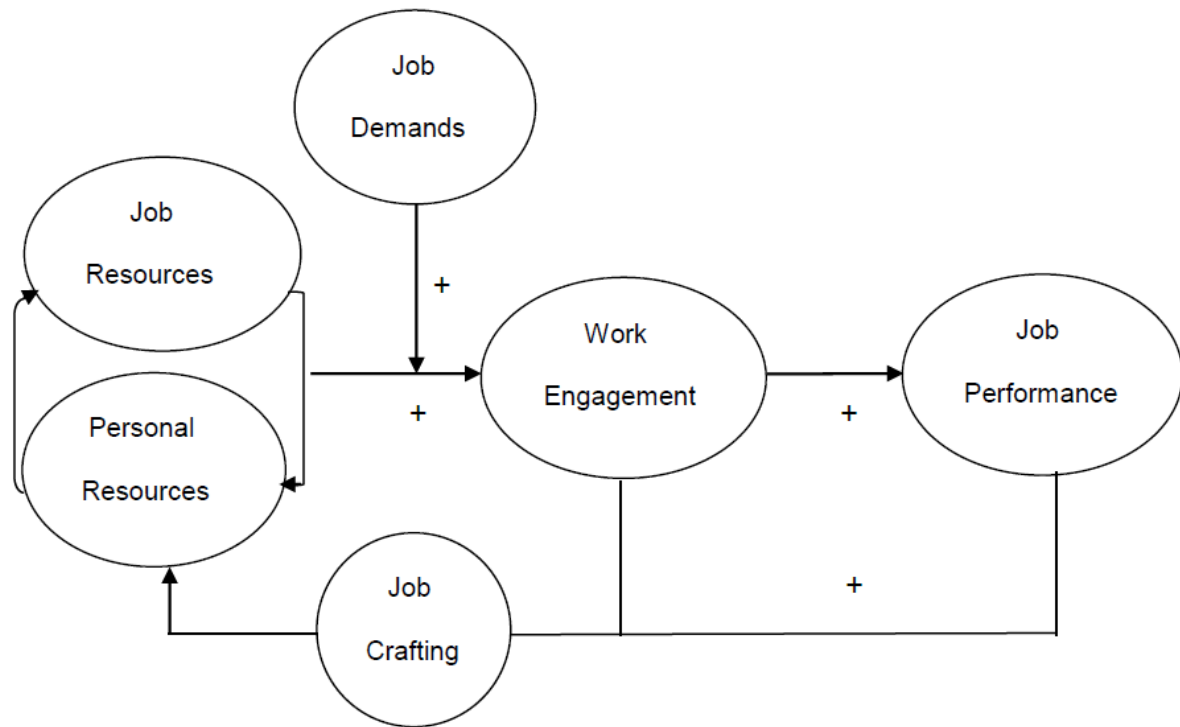


Figure 2.1. The JD-R model of work engagement (Bakker, 2011)

A comprehensive article by Bakker (2011) explains the key elements on which the JD-R model's theoretical foundation was grounded. He argues that the following propositions make the JD-R model practically useful and implementable:

- a) It is assumed that every organisation is characterised by its own unique work environment.
- b) Every work environment and the jobs situated within it have their own job demands and resources.
- c) Two simultaneous psychological processes are related to job demand and resources, namely a health impairment process, and a motivational process. The health impairment process accounts for negative consequences, such as burnout and work-related stress, when high job demands are paired with low resources. The motivational process (consistent with the JCM) accounts for positive outcomes when high job resources are paired with high demands.
- d) Job resources buffer the effect of job demands on job strain.
- e) Job resources become salient when job demands are high and gain motivational potential in the face of difficulty.

- f) Employee well-being results in organisational performance (due to high work engagement and the absence of burnout).
- g) Employees who are engaged in their work also actively try to optimise their work environment by engaging in job crafting.

The model forms an overarching taxonomy that can be utilised to group job demands and resources into one model. Its flexibility allows for its application to any occupation or job position, irrespective of its nature or industry (Bakker, 2011). Figure 2.1 shows that job and personal resources, considered respectively and in combination, predict work engagement. These relationships are moderated by the presence of job demands. The presence of high job demands paired with high job and personal resources result in greater work engagement in comparison to a situation where one of these components is low. Xanthopoulou, Bakker, Demerouti and Schaufeli (2009a), noted that reciprocal relationships exist between job resources, personal resources, and work engagement and that job and personal resources become salient when job demands are high. Work engagement predicts job performance that, in turn, reinforces the accumulation of more resources through job crafting behaviour. Consistent with the COR theory, the feedback loop from job performance indicates that engaged employees who perform well are able to create their own resources by engaging in crafting behaviour (Bakker, 2011). The relationship between job performance and resources operate through the role of job crafting behaviour, and is moderated by the role of work engagement. The model's respective constructs will now be discussed.

2.3.1 Job performance

In the JD-R model, job performance is hypothesised to be an outcome of work engagement. It is also thought to influence job crafting behaviour, although this relationship is moderated by the influence of work engagement. Job performance is probably the single most important aspect within any industry and organisation due to its direct impact on a company's bottom line. Many of the Human Resources Management functions reside around the measurement and improvement of job performance, for example, recruitment and selection, job performance appraisal and feedback, training and development, and pay structure design (Viswesvaran & Ones, 2000). Yet, no simple agreed upon definition of performance exists (Arvey & Murphey, 1998). Several categories of definitions have evolved over the years based on behavioural content, organisational environments, organisational consequences, motivational antecedents, and personality factors related to performance (Motowidlo, 2003). Motowidlo broadly defines job performance as "the total expected value to the organisation

of discrete behaviours that an individual carries out over a standard period of time” (2003, p. 40).

Traditionally, before the 1990’s job performance was only conceptualised in terms of task related performance criteria. Employees’ performance was evaluated according to their proficiency as stipulated in their job descriptions (Griffin, Neal & Parker, 2007). Over the last 20 years, the changing nature of the work environment inspired the acknowledgement of job performance as a multidimensional construct, which consists of more than just task performance.

Motowidlo and Van Scotter (1994) provided evidence that performance could be divided into task and contextual performance. From there onwards, many researchers worked from this taxonomy. *Task performance* refers to the required proficiency with which specified tasks should be completed and includes the accomplishment of core, technical, in-role duties and tasks that differentiate one job from another (Bing, Davinson, Minor, Novicevic & Frink, 2011). Aguinis (2009) explained that the technical aspect of a job included elements of declarative knowledge, procedural knowledge and skills. Declarative knowledge includes the information and facts an individual needs to execute a job, while procedural knowledge encompasses knowledge about how a job should be executed in terms of interpersonal, cognitive, physical and perceptual motor skills. Campell’s model of performance (as cited in Sonnentag & Frese, 2002) reviews five factors that relates to task performance, namely: 1) job-specific task proficiency, 2) non job-specific task proficiency, 3) written and oral communication, 4) supervision and leadership, and 5) management and administration. In general, each job, organisation, and even industry specifies the required task performance criteria necessary to perform effectively within a particular job. Individual differences in knowledge, skills, abilities, training and experience form the critical antecedents of task performance (Motowidlo & Van Scotter, 1994).

In contrast, *contextual performance* reflects desired employee behaviour. Arvey and Murphey (1998, pp. 146-147) define contextual performance as “extra task proficiency that contributes more to the organisational, social, and psychological environment to help accomplish organisational goals”. The technical job core, *vis a vis* task performance, functions within this organisational, social, and psychological work environment and the behaviours related to the environment should be conducive to the accomplishment of work goals. Contextual performance refers therefore to any positive behaviour that goes over and beyond what is expected of employees in terms of actual job and task requirements. These behaviours

include, among others, organisational citizenship behaviour (which consists of conscientious initiative, personal support, and organisational support), job involvement, positive organisational behaviour, work engagement, spontaneity, volunteering, suggestion making, innovativeness, and loyalty) (Arvey & Murphey, 1998). Borman and Motowidlo (as cited in Motowidlo & Van Scotter, 1994) identified five categories of contextual performance, namely: 1) volunteering to carry out tasks that are not formally part of a job description; 2) persisting with extra enthusiasm in order to complete own tasks successfully; 3) helping and cooperating with others; 4) following organisational rules and procedures even when it is personally inconvenient, and 5) endorsing, supporting, and defending organisational objectives. A review by Podsakoff, MacKenzie, Paine and Bachrach (2000, p. 536), which focused on organisational citizenship behaviour (OCB), emphasised the importance of contextual performance when the results of a variety of studies indicated that OCB explained 42.9% unique variance in performance evaluation procedures. Moreover, contextual performance promotes communication between employees and creates a positive work environment. Motowidlo and Van Scotter (1994) argued that personality factors are the best predictors of contextual performance.

In conclusion, task and contextual factors determine job performance. Task performance is mainly determined by a person's knowledge and skills required to accomplish a job whereas contextual performance is determined by factors situated within a person's personality structure. The JD-R model focuses on work engagement as the primary antecedent of job performance. The job performance construct will be measured by means of historic job performance appraisal data.

2.3.2 Work engagement

Job resources, personal resources, and job demands are theorised to be the antecedents of engagement, whilst job performance is theorised to be the outcome of engagement. As one of the first to write about engagement, Kahn (as cited in Bakker, 2011, p. 265) defined engaged employees as "being fully physically, cognitively, and emotionally connected with their work roles". Engagement has developed over the past two decades and can be considered as a relatively new construct in the field of Industrial/Organisational Psychology.

Research on engagement was stimulated by the investigation into work-related stress and burnout (Bakker, Schaufeli, Leiter & Taris, 2008) and was subsequently born within the stress research tradition in the beginning of the 1990s. However, as research around the construct progressed, two schools of thought developed (Bakker et al., 2008). The one school

conceptualised engagement, together with its three sub-dimensions (vigour, dedication, and absorption), to be the exact opposite of burnout (exhaustion, cynicism, and inefficacy) (Maslach & Leiter, 1997). Work engagement was consequently seen as the positive antithesis of burnout and was thought to be one end of a work-related health and well-being continuum. The alternative school of thought conceived engagement as a distinct concept in terms of positive well-being, although still considered it inversely related to burnout (Schaufeli, 2011). Today, the latter conceptualisation is the more accepted (Bakker et al., 2008).

Several definitions of engagement have developed over the last couple of years. Schaufeli and Bakker (as cited in Bakker, 2011, p. 265) defined work engagement as “an active, positive work-related state that is characterised by vigour, dedication, and absorption”. Arguably, this definition is considered the most popular. Bakker (2011) explains the sub components of engagement as follows:

- a) *Vigour* is characterised by high levels of energy, resilience, perseverance and tenacity, and a willingness to persist in one’s work.
- b) *Dedication* refers to the pride and enthusiasm an employee shows for his/her work. It reflects an employee’s sense of significance and the inspiration to also accept challenges.
- c) *Absorption* relates to feelings of happiness and fulfilment in one’s job; to be engrossed in and devoted to one’s work.

Engaged employees are active agents who believe in themselves and enjoy their work. Although engaged workers also experience fatigue, they persist in the face of difficulty and experience satisfaction (Bakker, 2011). Engagement is also characterised by other features, such as proactive crafting within jobs, creating one’s own positive feedback, and changing the work environment to better suit oneself. Schaufeli (2011) noted that engaged employees’ values are likely to match the organisation’s values and they tend to engage in positive organisational behaviour over and beyond what is expected of employees. As has been noted, engagement has been found to have a positive relationship with constructive organisational behaviours and work attitudes, such as job satisfaction, job involvement, and organisational commitment (Giardini & Frese, 2008; Hakanen, Schaufeli & Ahola, 2008; Harter, Schmidt & Hayes, 2002).

A relatively recent article by Saks (2006) reported that a meaningful difference exists between job and organisational engagement. He considers employee engagement to be an overarching concept, while he divides this concept into engagement related to a job and

engagement related to an organisation. This was the first study to make such a distinction, however, not much evidence of this distinction was found in other literature on engagement.

Work engagement has become an important concept for organisations as employers realised that they needed not only healthy employees, but a motivated and engaged workforce (Herbert, 2011). Schaufeli (2011) summarised the results of several engagement studies related to health outcomes. Firstly, engaged employees showed low levels of anxiety, work-related stress, and depression. Secondly, the physical health of engaged employees was also perceived as high. Lastly, positive emotions, low levels of burnout, and resilience after a long day's work were also associated with high levels of engagement.

In conclusion, work engagement is the result of intricate interactions. The combination of job resources, personal resources, and job demands has to operate in such a way as to provide employees with the opportunity to experience engagement. The JD-R model (Bakker & Demerouti, 2007) distinctly explains the different interactions between job resources and demands and the accompanying outcomes. Low job demands paired with low job resources are likely to result in *apathy*. High job demands associated with low resources will possibly result in *burnout*, while the opposite outcome will be *boredom*. Engagement is the result of both high job demand and resources. This is related to the motivational Goal-Setting Theory of Latham and Locke (2006), which states that the more difficult the set goal is, the higher the motivation and related effort to attain the goal, will be. When job demands are high, employees draw on their job and personal resources in order to effectively deal with and face the challenges set by the demands (Bakker & Demerouti, 2007). The presence of high demands fuels the motivation to succeed in one's job and is seen as a challenge, rather than a threat. It is however important to realise that coping resources should be available for employees to successfully address demands. If this is not the case, challenges become threats and the strain resulting from the demands could develop into burnout (Bakker, 2011). Work engagement is therefore the product of high job demands associated with the availability of many job resources, and the ability of employees to draw from their personal resources. The work engagement construct will be measure by means of the Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003).

2.3.3 Job demands

Job demands fulfil a moderating role in the JD-R model. It moderates the relationships between resources and engagement. Job demands are those “physical, psychological, social, or organisational aspects of the job that require sustained physical and/or psychological

(cognitive and emotional) effort or skills” (Bakker & Demerouti, 2007, p. 312). Job demands should not necessarily be viewed as negative, but can turn into barriers when they are not met by sufficient resources. Examples of job demands are work overload, time constraints, mental demands, job insecurity, and emotional demands (Bakker, 2011). Three scenarios surrounding job demands will now be presented and discussed.

Firstly, job demands can *exceed* resources (including job and personal resources). This occurs when employees’ job demands are high and the resources necessary to adequately deal with job demands are not available. The case may be that the job or work environment does not provide the necessary job resources to handle these situations effectively (Demerouti & Bakker, 2011). For example, sick patients require high quality care while hospital management does not appoint enough nurses. Often, nurses face extremely high workload demands and do not possess enough resources to deal with these demands. Similarly, it may be that the employee experiences a lack of personal resources in relation to job demands. For example, a nurse’s personal resources such as optimism and hope may be low due to personal concerns, and cause the nurse to perceive job demands as too much to cope with. Obviously, when job demands exceed resources it can also be the result of the combination of decreased job and personal resources. It is usually within this scenario that job demands cause job strain and related physiological and/or psychological costs, such as ill health, burnout, work stress, absenteeism, and exhaustion (Hakanen et al., 2008; Schaufeli & Bakker, 2004; Schaufeli, Taris & Van Rhenen, 2008; Xanthopoulou et al., 2007). These negative outcomes develop due to the sustained physical and/or psychological effort exerted in attempts to meet job demands (Bakker, 2011). Consequently, job demands cause employees to experience these negative effects due to the extended effort that has to be put forth in order to meet job demands. Job demands and its associated consequences may evoke what Demerouti and Bakker (2011) call, the *health impairment process*.

A second scenario is where job demands *meet* job resources. This scenario occurs when adequate resources are available to deal with high demands. For example, although nurses work long hours the hospital provides a common room where nurses can relax and regain their energy. Bakker (2011) states that job resources gain salience when job demands are high. This implies that employees only truly utilise their available resources when job demands are high. This instigates the *motivational process* that fosters the growth, learning, and development of employees, because they are motivated to deal with demands by learning how to mobilise alternative resources and adapt to challenges (Bakker & Demerouti, 2007).

This state is optimal since the combination of high resources and demands result in engagement, satisfaction, and ultimately performance (Xanthopoulou, Bakker, Heuven, Demerouti & Schaufeli, 2008; Xanthopoulou, Bakker, Demerouti & Schaufeli, 2009b).

Thirdly, job resources can *exceed* job demands. This scenario is as unfavourable as when job demands exceed resources. Without any job demands, work has the potential of becoming boring, dull, and unchallenging (Bakker, 2011). Employees might feel that they do not contribute to a bigger meaningful whole, their efforts are minimal, and that others can cope without them. For example, five nurses could be working in a ward with three patients. The nurses may have too little work and sit around for hours every day. The workload is therefore too little and nurses would probably lose interest in their jobs.

In conclusion, any job needs a comparable amount of demands and resources to keep employees focused and engaged to achieve optimal results. The moderating effect of job demands consequently plays an essential role in determining the relationships between resources and engagement. The job demands in this study is measured by the amount of work overload (pace and amount of work, mental load, and emotional load) as measured by the Job Demands-Resources Scale (Rothman, Mostert & Strydom, 2006).

2.3.4 Job crafting

As research on the working of the JD-R model progressed, researchers started to investigate the existence of a positive feedback loop from job performance to job crafting (Tims & Bakker, 2010). The JD-R model (see Figure 2.1) shows that this feedback loop is moderated by the presence of work engagement. In the theoretical model, job crafting is also hypothesised to influence job resources and personal resources.

Wrzesniewski and Dutton explain that “[j]ob crafting is defined as changing the boundaries and conditions of job tasks and job relationships and of the meaning of the job” (as cited in Tims & Bakker, 2010, p. 843). Therefore, job crafting influences how tasks are conceptualised and carried out (task crafting), how frequent and with whom employees interact at work (relational crafting), and how employees cognitively ascribe significance and meaning to their jobs (meaningfulness crafting) (Tims & Bakker, 2010). Crafting is a form of proactive behaviour through which employees actively attempt to personalise and improve their jobs by changing the nature of job demands and/or resources in the work setting. It entails the utilisation of opportunities to facilitate change and customisation in a job so that it better suits the individual’s skills, needs and preferences (Berg, Dutton & Wrzesniewski,

2007). Job crafting, a relatively new development within the job design literature, is a form of self-initiated job redesign with the purpose to align personal preferences (i.e. motives, strengths, and passions) with job requirements. Crafting is not negotiated with a manager, but rather a self-directed bottom-up approach to achieve a better person-job fit (Tims & Bakker, 2010).

The need for proactive craftsmanship of jobs is due to the increasingly uncertain dynamics of the modern work context. The JD-R model specifies four dimensions through which job crafting elements can be executed, namely: *Increasing structural job resources* (i.e. developing one's capacities and learning new things); *increasing social resources* (i.e. asking colleagues for advice); *increasingly challenging job demands* (i.e. taking on additional challenging tasks); and *decreasing hindering job demands* (i.e. ensuring that work is emotionally less intense) (Tims, Bakker & Derks, 2012). In many instances, job crafting could be regarded as adaptive behaviour in reaction to obstacles and limitations of a current job's design, while in other instances it is conceptualised as proactive behaviour in anticipation of better job-person fit.

An interesting question remains concerning the amount of employees' with the ability to craft their job characteristics. Although employees who are inclined toward proactive behaviour (regarded as a personal resource) may find it easier to job craft, Tims et al. (2012) argue that all employees should be able to job craft to a certain extent. They maintain that all jobs encompass certain job demands and resources that can be adapted to better suit the individual's needs. However, they do suggest that jobs that contain more autonomy are probably easier to craft than those who have less autonomy. A study by Wrzesniewski and Dutton (as cited in Tims et al., 2012) found that nurses whom possess relatively little autonomy (an element of task crafting), changed their jobs through meaning crafting (i.e. not only providing high quality care but also giving personal attention to the patient) and relational crafting (i.e. including the patient's family and gathering inputs and information from them). Job crafting behaviour is therefore influenced by the nature of job resources and demands in the environment and to a certain extent by employees' personal resource capacities. The dimensions of job crafting therefore relate to the job resources, personal resources and job demands constructs (Tims et al., 2012).

Job crafting has been found to have significant positive relationships with work engagement, employability, job performance, job satisfaction, resilience and thriving (Berg et al., 2007; Tims et al., 2012). One should however be aware of the unintentional negative effects that job

crafting can have on an individual, group or organisation, such as increasing stress levels, avoiding communication, or regretting taking on additional tasks (Berg et al., 2007). The job crafting construct will be measured by means of the Job Crafting Scale (Tims et al., 2012).

2.3.5 Personal resources

Consistent with the ERI model, the JD-R model encompasses a personal resources component (Bakker, 2011). Personal resources are hypothesised to be one source of antecedents of work engagement. As shown in the model (Figure 2.1), the Personal Resources construct is influenced by the presence of job resources, work engagement and job crafting, together with the moderating effect of job demands on the relationship between personal resources and work engagement. A personal resource is situated within the individual and is “either valuable as such (e.g. self-esteem, hope, and optimism) or can be used in obtaining centrally valued ends external to the individual” (Hobfoll as cited in Kira, Van Eijnatten & Balkin, 2010, p. 617). Hobfoll, Johnson, Ennis and Jackson (as cited in Bakker et al., 2008, p. 192) define personal resources as “positive self-evaluations that are linked to resiliency and refer to individuals’ sense of their ability to control and impact upon their environment successfully”.

The presence of certain personal resources and the associated positive self-evaluations they create have been found to be related to outcomes such as adaptability, goal-setting, performance, motivation and other desirable life outcomes (Bakker et al., 2008). Specific personal resources, such as active coping styles, a sense of coherence, optimism, self-efficacy, organisational-based self-esteem and resilience, have empirically been shown to predict work engagement and job performance (Herbert, 2011; Janse van Rensburg et al., 2013; Rothman & Storm, 2003; Xanthopoulou et al., 2008). Recently, Kira et al., (2010) emphasised the importance of personal resources in predicting a person’s ability to work sustainably and engage in job crafting behaviour. It was argued that personal resources differ between people, and within people. Personal resources can therefore also fluctuate within a person.

The inclusion of the personal resources component is one of the distinguishing elements that makes the JD-R model more comprehensive in explaining work-related health and well-being when compared to previous job stress models (Bakker, 2011). It draws not only on the interaction between job demands and job resources as antecedents of positive outcomes, but includes the individual’s standing on specific personal resources as antecedents of organisational well-being. Langelaan, Bakker, Van Doornen and Schaufeli (2006) stress the importance of looking at individual differences in discovering why some employees thrive in

their jobs, while others do not. Their research provided support for the hypothesis that engaged employees' personal resources differ from non-engaged employees' (Bakker et al., 2008). Personal resources combined with job resources foster personal growth, learning and development, and facilitate an individual's ability to mobilise other available resources more effectively (Bakker, 2011). Personal resources are therefore not only intrinsically valuable, but also allow employees to further develop their personal resources and to utilise other job-related resources in their environment.

Regardless of the existing body of knowledge on the personal resources component of the JD-R model, the need exists to validate and expand this research area (Demerouti & Bakker, 2011). Armon, Shirom and Melamed (2012) argue for the importance of understanding the etiology of individual characteristics related to burnout in order to develop preventative interventions. The present study argues for the importance of understanding individual characteristics related to work engagement with the aim of validating the working of the JD-R model. Knowledge on the functioning of personal resources in the JD-R model will enable practitioners to develop interventions that can foster the growth of personal resources in the pursuit of optimising employee engagement. The personal resources construct will be measured by means of Psychological Capital (PsyCap), which contains four sub-components, namely hope, optimism, resilience, and self-efficacy.

PsyCap was chosen to measure the Personal Resources construct based on several factors. PsyCap has been shown to predict performance both conceptually and empirically and organisations are therefore able to develop their employees' PsyCap and contribute to the overall organisational performance (Peterson, Luthans, Avolio, Walumbwa & Zhang, 2011). Additionally, PsyCap is considered as a source of sustained competitive advantage to organisations. Toor and Ofori (2010) argue that the success of organisations lie in their ability to attract, develop, retain, and engage the best human capital in the market. Successful organisations possess psychologically healthy employees with high level of self-awareness. Organisations' investment in PsyCap development provides employees with the capability to channel their strengths, talents, and potential to their work, which almost inevitably translate into a long-term competitive advantage for organisations. PsyCap can therefore respectively be utilised as a performance management and Human Resource Development tool. In conclusion, a recent meta-analysis of PsyCap by Avey et al. (as cited in Youssef-Morgan, 2014) point to the well-researched theoretical basis of this second-order construct and therefore the reliability of using PsyCap to represent the Job Resources construct.

PsyCap is situated in the field of Positive Organisational Behaviour, which, at a higher level, is situated within the Positive Psychology paradigm. These two areas will subsequently be discussed in order to contextualise PsyCap within a broader theoretical framework.

2.3.5.1 Positive Psychology

In order to understand the phenomena of personal resources represented by PsyCap, it is important to contextualise it within a broader theoretical framework. The Positive Psychology paradigm first conceptualises people as possessing resources that are situated within the person, and secondly, focuses on building people's strengths, capacities, and virtues (Seligman & Csikszentmihalyi, 2000). This paradigm does not claim ownership of positivity, but opts to investigate people through a positive lens rather than a negative one, which was the dominant notion in traditional psychology (the malfunctioning and weaknesses of people, for example) (Avey, Luthans, & Youssef, 2010). Positive Psychology is defined as "the scientific study of optimal human functioning" (Linley, Joseph, Harrington, & Wood, 2006, p. 8).

Positive Psychology was introduced by Martin Seligman in 1998. The fundamental viewpoint of this meta-psychological paradigm is that one should build on the positive capacities that people have (Seligman & Csikszentmihalyi, 2000). Positive Psychology's theory focuses on three levels of positivity, namely the individual level (i.e. positive personal traits), the subjective level (i.e. positive personal experiences characterised by individual states, such as PsyCap), and the group level (i.e. organisations or institutions that develop people's citizenship) (Seligman and Csikszentmihalyi as cited in Herbert, 2011). Personal resources within the JD-R model thus lie on the individual and subjective levels of analysis.

As research within Positive Psychology progressed, conceptual and empirical overlap between positive traits (individual level) and states (subjective level) were identified. Despite their overlap, these constructs remain distinct and research supports their discriminant validity (Avey et al., 2010). Luthans and Youssef later developed a "trait-state continuum" which attempted to explain the theoretical differences between the traits and states found within Positive Psychology (Avey et al., 2010, p. 435):

- a) Pure positive traits: one extreme on the continuum characterised by stability over time and across situations, including traits that are believed to be "hardwired" such as intelligence or hereditary characteristics;*

- b) *Trait-like constructs: closer to the trait end of the continuum, and refer to relatively stable psychological characteristics such as conscientiousness, extraversion and core self-evaluations;*
- c) *State-like psychological resources: closer to the opposite (state) end of the continuum, and include PsyCap and its constituents of efficacy, hope, optimism, and resiliency, which tend to be malleable and thus open to development and are particularly relevant to the workplace; and finally;*
- d) *Positive states: the other extreme of the continuum, including momentary and highly variable states such as moods and emotions.*

The present study focuses on PsyCap, with its state-like psychological resource components that represent the personal resources construct in the JD-R model. Recently, Positive Psychology has provided a new perspective for investigating Positive Organisational Behaviour as the outcome of complex interactions between intrapersonal-, interpersonal-, and situational factors (Linley et al., 2006). PsyCap is classified as one form of positive organisational behaviour.

2.3.5.2 Positive Organisational Behaviour

Positive Organisational Behaviour (POB) is rooted in Positive Psychology and is known as the field that brought the positive paradigm to the world of work (Toor & Ofori, 2010). POB is defined as “the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvements” (Luthans, 2002b, p. 698).

Certain criteria were developed to distinguish POB constructs from other positive approaches found within theory and practice. The criteria which determine whether a construct should be included in the definition of POB are: 1) the construct should be grounded in theory and research; 2) the construct should have a valid measurement; 3) the construct should be “state-like” in terms of its malleability and openness to development; 4) the construct should have an impact on work-related outcomes, such as performance and satisfaction; and 5) the construct should be unique to the field of POB (Luthans, 2002a).

Emphasis on the importance of a sound research and theoretical basis in POB constructs serves the purpose of distinguishing them from readily available self-help books and

philosophies (Youssef & Luthans, 2007). POB is essentially concerned with state-like constructs that are malleable and have the capacity to be developed. The predominant POB constructs that have been identified, all of whom meet the specified criteria, are hope, optimism, resilience, and self-efficacy, which together form the four sub-dimension of PsyCap.

2.3.5.3 Psychological Capital

Psychological capital (PsyCap) can be distinguished from human capital (what we know), social capital (who we know), and economic capital (what we have). PsyCap encompasses “who we are” (Luthans, F., Luthans, K. W. & Luthans, B. C., 2004) and is defined as (Luthans, Youssef, & Avolio, 2007, p. 3):

An individual's positive psychological state of development and is characterised by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success.

Despite the apparent similarities and conceptual overlap between the components of PsyCap (self-efficacy, optimism, hope, and resilience), each of them shows their own construct validity and is therefore distinct from the others (Avey et al., 2010). Recently, it was found that PsyCap, as a composite core factor, is a better predictor of outcomes like performance than the four components assessed individually (Luthans, Avolio, Avey & Norman, 2007a). This is due to the synergistic effect that hope, optimism, self-efficacy, and resilience have on each other. The overall impact of PsyCap is therefore greater than the individual effects of each of its components. Youssef-Morgan (2014) also stresses this by explaining that the four PsyCap components share a positive appraisal of circumstance and prospect of accomplishment based on perseverance and driven effort. Confirmatory Factor Analysis supports the theoretical notion that PsyCap is a higher-order factor includes the aforementioned sub-dimensions (Luthans et al., 2007a).

Up until now, only the above-mentioned components have been included in the term ‘PsyCap’. However, it is not impossible that other positive psychological constructs could

also be included. Luthans et al. (2007b) established a set of criteria that should be met when positive psychological constructs are considered for inclusion in 'PsyCap', which are very similar to the POB criteria. PsyCap is a state-like and dynamic construct situated within the POB field. Due to its malleability, the individual components or overall construct can be developed through short (e.g. three hours) and highly focused interventions (Youssef & Luthans, 2007). A study by Peterson et al. (2011) confirmed that PsyCap changed over time due to the influences of job demands and resources. PsyCap can therefore be increased through positive feedback from managers, peers, leaders, the job itself and other factors, such as task significance.

A recent meta-analysis by Avey, Reichard, Luthans and Mhatre (2011) summarised the relations between PsyCap and employee attitudes and behaviour. PsyCap was found to have significant positive relationships with desirable employee attitudes, such as organisational commitment, psychological well-being, and job satisfaction. Desirable employee behaviour (organisational citizenship behaviour) and success across multiple performance measures (self, supervisory ratings, and objective indicators) were also found to be outcomes of PsyCap. In contrast, PsyCap was also found to have significant negative relationships with destructive employee attitudes (turnover intention, cynicism, anxiety, and job stress), and behaviour (workplace deviance). Herbert (2011) found that PsyCap moderated the relationship between occupational stress and burnout and also confirmed that PsyCap had a significant positive correlation with work engagement.

PsyCap's positive effect on various employee attitudes and behaviours are apparent. As has been noted, the components of PsyCap operate synergistically. However, Avey (2014) notes the lack of studies that measure the antecedents and formation of the PsyCap components. A detailed discussion of hope, optimism, self-efficacy, and resilience will follow, together with information on the antecedent of the components.

2.3.5.3.1 Hope

The word hope is used in everyday life to express the belief that a situation will turn out for the best. A certain optimistic expectation or goal therefore exists. Within the academic literature, the most commonly used definition of hope describes it as "a positive motivational state that is based on an interactively derived sense of successful 1) agency (goal-directed behaviour) and 2) pathways (planning to meet goals)" (Snyder, Irving & Anderson, 1991, p. 287). Hope has three conceptual foundations, namely, agency, pathways, and goals (Luthans et al., 2007a). Agency refers to the will or motivational energy to achieve a certain outcome

or goal. Pathways refers to the process of identifying the roads that lead to the accomplishment of goals and sub goals, but beyond this, also identifying alternative pathways if the primary paths are not viable. Pathways therefore set out the way for the accomplishment of goals (Luthans et al., 2007a). The quality of the goals also plays a role and can be adapted based on the role of situational factors or the availability of resources (Luthans & Youssef, 2007). Hope creates the will to achieve success and the capability to identify, transform, and pursue the way to accomplish goals (Snyder, 2000). Hope ultimately constitutes a willpower and a way-power.

Individuals who are high in hope have the ability to develop contingency plans to achieve their goals despite the challenges and obstacles they face (Luthans et al., 2007a), whereas those who are low in hope give up on their goal attainment and regress to a negative state where hope is lost (Avey et al., 2010). Herbert (2011) provides a summary of the antecedents of hope which typically surface when negative events arise, that include 1) traumatic stimuli, 2) life-threatening circumstances, 3) crises such as death or loss, and 4) the temptation to despair (the loss of hope). Conceptually, a learning goal orientation is thought to precede the development of hope, because an individual's goal orientation creates the hope of goal attainment. Lastly, verbal cues have also been found to be antecedental in the creation of hope, since positive cues provide a source of motivation that increases a person's hope to devise pathways and achieve success.

Hope has been studied in relation to numerous other variables, such as performance and organisational profitability (Adams et al., 2002), job satisfaction and organisational commitment (Larson & Luthans, 2006), work happiness (Youssef & Luthans, 2007), and retention of employees (Peterson & Luthans, 2003). Luthans et al. (2007a) argue that very few studies have explored the impact of hope in the workplace and that researchers should focus on this in future.

Hope being a state-like construct, is developable through different interventions such as goal-setting training which include activities such as goal-stretching (setting goals that are challenging and force a person to stretch themselves), re-goaling to steer clear of false hope, and stepping (step-by-step mastery) (Snyder, 2000). Luthans et al. (2007a) also propose that organisations can develop employees' hope by encouraging 'out-of-the-box' thinking, contingency planning, stimulating creativity, and encouraging participation and initiative taking. However, when job resources are low, employees may find it difficult to clarify and develop alternative pathways in order to reach their goals.

2.3.5.3.2 Optimism

In lay terms, optimists expect good things to happen and have a positive outlook on life, while pessimists tend to expect the worst. Although optimism is the most frequently discussed PsyCap trait, it is also the trait that is understood the least (Prinsloo, 2012). Optimism has a specific empirical meaning within the research context. Seligman (as cited in Luthans et al., 2007a, p. 547) defines optimists “as those who make internal, stable, and global attributions regarding positive events (e.g., task accomplishment) and those who attribute external, unstable, and specific reasons for negative events (e.g., a missed deadline)”. Optimism is thus a habitual attribution style that is used for explaining positive and negative events. Positive events are attributed to internal, stable and global reasons whereas negative events are attributed to external, variable and specific reasons (Luthans & Youssef, 2007). Optimists remain positive about the future despite the obstacles and difficulties that they face, because negative events are attributed to external causes (Snyder as cited in Prinsloo, 2012).

Optimism is a goal-based construct that has substantial value, especially when an outcome is important (Scheier & Carver, 1985). However, POB emphasises the realistic and flexible nature of the construct to avoid the notion of false optimism. Thus, even the diehard optimist has pessimistic, or at least realistic, thoughts at times. The state-like, dynamic and changeable nature of optimism makes the construct open to development through methods such as Schneider’s three-step process that focus on leniency for the past, gratitude for the present, and opportunity seeking for the future (Herbert, 2011).

Research on optimism can be traced back to studies on twins and hereditary influence (Plomin as cited Roux, 2010). It is argued that optimism has some form of heritability, but the question remains whether optimism as such is inherited or whether it is a component of a person’s temperament. Optimism relates to extraversion and emotional stability, both of which are known to be hereditarily influenced (Scheier, Carver & Bridges, 1994). Another antecedent of optimism is childhood experience. Erikson (1968) argues for the importance of basic trust and mistrust that is formed during childhood, experiences which are not that different from optimism and pessimism. Moreover, attachment theorists (Carnelley & Janoff-Bulman, 1992) also view the child-parent (or primary caretaker) relationship as an important determinant of secure adult attachment. Childhood’s experiences and secure attachment are believed to play a role in the degree to which people experience optimism.

Luthans and Youssef (2007) provide an overview of the broad range of positive outcomes associated with optimism, which include, well-being, coping, recovery, and physical and

psychological health. Finally, optimism is related to performance outcomes in numerous life domains, especially in the work place (i.e. sales outcomes).

2.3.5.3.3 Self-efficacy

Self-efficacy in the workplace is defined as “one’s conviction (or confidence) about his or her abilities to mobilise the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context” (Stajkovic & Luthans, 1998, p. 66). Self-efficacy therefore plays a role in how people think, feel and act based on the self-evaluation of their resources and motivation to take action. Self-efficacy is argued to represent the best fit to the POB inclusion criteria (Luthans, 2002b). This construct has the most established empirical foundation and research support in favour of all four PsyCap dimensions. Whereas hope, optimism, and resilience can be classified as a trait and state, self-efficacy has primarily been conceptualised and measured as a state, and is domain specific (Luthans & Youssef, 2007).

The early development of self-efficacy is influenced by two interacting factors (Bandura, 1997). It is firstly influenced by the development of the ability to engage in symbolic thought, which includes the capacity to understand cause-and-effect relationships, self-observation, and self-reflection. Personal agency develops during infancy and progresses from a perception of causal relationships to an understanding that actions have outcomes. Eventually a comprehension develops that one’s own actions have real-world consequences. Secondly, the development of self-efficacy is influenced by the responsiveness of the environment (particularly the social environment) to a child’s actions. Responsive environments facilitate a child’s understanding of efficacy beliefs, whereas unresponsive environments that are unresponsive to the actions of the child inhibit this development. Personal agency and efficacy beliefs continue to develop over a person’s lifespan based, on information from five sources: 1) performance experiences (successful performance experiences which can be attributed to one’s own efforts will strengthen efficacy beliefs for that particular domain or behaviour, and are the most influential source of information); 2) imaginal experiences (imagining oneself or others behaving effectively or ineffectively in certain situation based on verbal persuasion, or actual/vicarious experiences); 3) vicarious experiences (one’s own efficacy beliefs are influenced by observing the actions and consequences of others’ behaviour); 4) verbal persuasion (one’s efficacy beliefs are influenced by what others say regarding your potential and abilities); and 5) physiological and emotional states (efficacy beliefs can be influenced by the associated positive or negative states related to poor or good

performance, e.g. success is associated with pleasant-feeling states). Targeting these five sources of information can develop self-efficacy.

Luthans and Youssef (2007) summarise the work-related outcomes of self-efficacy. It has been found to influence work attitudes (across cultures), moral and ethical decision-making, leadership effectiveness, participation, creativity, career decision making, entrepreneurship, learning, and work performance. Literature on self-efficacy distinguishes between specific self-efficacy, which refers to specific tasks, and general self-efficacy, which is more global in nature (Herbert, 2011). This study's focus lies with specific self-efficacy.

2.3.5.3.4 Resilience

Resilience within the workplace is defined as “the capacity to rebound or bounce back from adversity, conflict, failure, or even positive events, progress, and increased responsibility” (Luthans as cited in Luthans & Youssef, 2007, p. 33). According to Luthans et al. (2007a), resilience has proactive and reactive dimensions. Proactively, resilience allows one to view setbacks as opportunities to learn, grow and develop. The proactive dimension promotes ‘discrepancy creation’ so that the person creates new goals based on the outcomes of previous setbacks. Reactively, resilience recognises the potential effect of setbacks, trauma, or even positive but overwhelming events (such as additional responsibility at work), and therefore the need to bounce back. POB views resilience as a process rather than an outcome. Consequently, people may actually become more resilient over time as they bounce back from setbacks (Luthans & Youssef, 2007).

Coutu (as cited in Luthans & Youssef, 2007) explains that highly resilient individuals are not somehow immune to the effects of adverse events. Rather, they accept reality, have strong and meaningful values and beliefs, and possess adaptive mechanisms that allow them to improvise and effectively respond to unforeseen situations. These mechanisms engage individuals’ creativity and flexibility toward the accomplishment of personally and organisationally meaningful goals.

The most prominent antecedent to resilience is adversity, or hardship and difficulty. Because resilience is viewed as a process, adversity is the single most important variable that distinguishes resilience from other personality traits or social management processes (Luthans as cited in Herbert, 2011). Adversity includes aspects such as challenge, disruption, and change that all precede the process of resilience. According to Luthans and Youssef (2007), research on resilience has revealed that individuals react differently to adverse events due to

specific attributes or situations that are necessary for the resilience process to occur. Although these attributes and situations are considered to be protective factors, it is important to note that certain factors may be present and beneficial for one person, yet not for another. These robust indicators include, among others, effective communication, a positive social orientation, internal locus of control, flexibility, interpersonal sensitivity, problem-solving ability, adaptive distancing, and productive critical thinking skills.

Work related outcomes of resilience, as summarised in Luthans et al. (2007a), include job satisfaction, organisational commitment, and work happiness. One study found a significant relationship between Chinese workers' resilience and their performance ratings, despite major changes and transformation that the company was undergoing (Luthans et al., 2007a).

Resilience is a state-like construct and can thus be learned and developed through interventions. Masten and Reed (2002) propose different strategies for building resilience, namely: 1) asset-focused strategies (enhancing a person's asset inventories to increase the probability of success e.g. knowledge, skills, abilities, social support); 2) risk-focused strategies (teaching a person how to employ their assets to effectively cope with risk factors); and 3) process-focused strategies (building a person's coping mechanisms in order to facilitate the utilisation of assets to overcome hardship).

This concludes the review about personal resources in the JD-R model. PsyCap will operationalise the personal resources construct in this study.

2.3.6 Job resources

Job resources, like personal resources, are viewed as predictors of engagement in the JD-R model and are influenced by personal resources and job crafting behaviour. Job resources are defined as those physical, social, organisational, and task related aspects of a job that are positive and motivational in nature. Job resources have three main purposes (Bakker & Demerouti, 2007), namely:

- a) To reduce job demands and therefore the associated physical and psychological costs.
- b) To function as motivators in achieving work-related goals.
- c) To act as stimulators of personal growth, development, and learning.

The multiple purposes of job resources indicate that they function as buffers to the demands set by a job, but also serve to motivate employees to engage with their work. Although job

resources have been found to moderate the relationship between job demands and their associated negative outcomes, job resources are important in their own right (Xanthopoulou et al., 2007). Resources related to job characteristics and the work environment have motivational potential (Hackman & Oldham, 1976), serve as motivators during goal-setting, and become influential in personal development and growth (Bakker & Demerouti, 2007). Job resources therefore not only buffer the effects of job demands, but also gain saliency when job demands are high (Bakker, 2011). As job demands increase, individuals rely more on their job and personal resources to deal with demands. Job and personal resources thus influence each other in a cyclical fashion. In the JD-R model, the job resources construct is one group of antecedents of work engagement.

According to Bakker and Demerouti (2007), job resources can be located at various levels within the work context, namely: organisational level (e.g. promotional and career opportunities, remuneration, job security, organisational justice); social and interpersonal level (e.g. supervisory support, co-worker support, team climate, coaching, transformational leadership); structural work level (e.g. participative decision making, role clarity); and task level (e.g. autonomy, task significance and identity, feedback, skill variety, responsibility). The presence of job resources relates to positive personal and organisational outcomes, such as organisational commitment, job satisfaction, and work engagement. Job resources and their intrinsic and extrinsic motivational potential are initiators of a motivational psychological process.

The job resources that were chosen for this study are autonomy, feedback from the job, task significance, and trust in a manager. The first three represent job resources at task level, while trust in a manager is a resource on an interpersonal level. These specific job resources were firstly chosen based on their applicability and relevance to the nursing profession. Nurses have a fair amount of autonomy in their decision-making and work methods. Nurses also receive daily feedback from their jobs in terms of patient progress and care. Task significance as a meaningful job resource is highly relevant to nursing as a caring profession. Nurses also work in close cooperation with their unit managers and trust in a manager therefore also constitutes an important job resource for nurses. Secondly, autonomy, feedback and task significance are three of the job characteristics contained in the Job Characteristics Model that, according to Behson (2012), is considered as one of the most influential theories in the organisational behaviour field. This points to the importance of these three characteristics and therefore warrants their inclusion as resources to measure the job resources construct. Lastly,

these resources were chosen in accordance with job crafting behaviours, namely task crafting (represented by autonomy and feedback), meaning crafting (represented by task significance), and relational crafting (represented by trust in a manager) to be able to ascertain to which degree a significant effect exists between job crafting and job resources (as hypothesised in the JD-R model).

Morgeson and Humphrey (2006) developed a Work Design Questionnaire (WDQ) with the aims of addressing the gap in work design literature, as well as developing a comprehensive and integrated work design questionnaire. They developed a three-component structure of work to classify job characteristics (job resources) across a variety of occupations. The three components are motivational-, social-, and work context components. The first component refers to motivational characteristics which are thought to reflect the complexity of work and have been investigated the most in the literature. Motivational characteristics include task and knowledge requirements of work. The second component, social characteristics, refer to work as it is situated in a wider social context and include the social and interpersonal aspects of work. Work context, the third component, refers to the physical and environmental aspects of work, such as ergonomics, equipment use, and work conditions. Autonomy, feedback, and task significance are classified as motivational task characteristics, which are concerned with how the work itself is accomplished, as well as the nature and range of the tasks associated with a job. Trust in a manager can be classified under the social characteristics component, but will not be measured with the WDQ, since trust in a manager is not explicitly measured in the questionnaire. These four job resources will be briefly discussed.

2.3.6.1 Autonomy

Autonomy is perhaps the job characteristic that has been investigated the most and is central in the motivational work design approaches (Morgeson & Humphrey, 2006). Hackman and Oldham (1976, p. 258) initially defines autonomy as “the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out”. However, recent research has expanded the conceptualisation of autonomy to include freedom and discretion in decision-making (Morgeson & Humphrey, 2006). The WDQ measures autonomy in terms of three interrelated sub-dimension, namely 1) work scheduling, 2) decision-making, and 3) work methods. Bakker and Demerouti (2007) state that autonomy is crucial for employee health and well-being because greater autonomy provides employees with more opportunities to deal with stressful situations. The WDQ classifies feedback as a motivational characteristic.

Nurses tend to have autonomy over their decision-making and the work methods they utilise. They decide how well and in which manner they want to care for patients. Unit managers however compile nurses' work schedules in order to distribute work shifts evenly and fairly.

2.3.6.2 Feedback

The WDQ, as in the Job Diagnostic Survey (Hackman & Oldham, 1976), measures feedback from the job. This is done with regards to the degree to which the job provides clear and direct information about the effectiveness of task performance (Morgeson & Humphrey, 2006). This dimension focuses on the job itself and how knowledge of one's own work activities provides feedback, as opposed to feedback from others such as supervisors and peers. The WDQ classifies feedback as a motivational characteristic. Feedback from the job thus includes information on the quantity and quality of a person's job performance. According to Bakker and Demerouti (2007), constructive feedback not only helps employees to complete their work more effectively, but also improves the communication between employees, colleagues, and supervisors.

Nurses receive feedback from the job in the form of patients' recovery process and recovery time; feedback from other nurses, doctors and family of patients. However, working with the frailty of the human body, nurses are not ensured that quality care will necessarily heal or cure the patient. Feedback from the job is thus equated to the nurses' own evaluation of whether they feel that they perform effectively, and not formal feedback from a supervisor..

2.3.6.3 Task significance

According to (Hackman & Oldham, 1976), task significance refers to the degree to which a person feels that their job has a significant impact on the lives of others, either inside or outside of the organisation. It is therefore trying to assess whether the job has a significant impact on the physical or psychological well-being of others. Task significance contributes to a person's experienced meaningfulness of their job (Morgeson & Humphrey, 2006). The WDQ classifies feedback as a motivational characteristic

Nurses ought to experience high levels of task significance, since their work has a direct and tangible impact on the physical health and well-being of patients. The quality of their care directly influences the recovery of patients. Nurses' task significance impacts on the lives of 'people outside of the organisation, since patients are essentially clients that make use of a service and leave after a certain period of time.

2.3.6.4 Trust in manager

Trust research has attracted considerable attention over the last decade. Rousseau et al. (as cited in Avolio, Gardner, Walumbwa, Luthans & May, 2004, p. 810) define trust as a “psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another”. The operationalisation of trust in a manager in this study refers to trust as the “willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Mayer et al. as cited in Schoorman, Mayer & Davis, 2007, p. 347). This definition implies that the trustee and the trustor are in a trusting relationship and are identifiable to each other. The trustor makes a rational decision with respects to what he/she is willing to risk and where they will be vulnerable in a relationship. Bakker and Demerouti (2007) assert that trust in one’s relationship with a supervisor may lessen the influence of job demands (e.g. workload, work-family conflict, emotional and physical demands) that cause strain, since the supervisor’s support and appreciation put demands in another light. The support and appreciation may also help the employee in coping with demands, act as a source of protection against ill health, and facilitate better performance.

Nurses ought to have relatively high levels of trust in their unit managers since they work in close proximity and are highly dependent on them for organising schedules and providing other administrative duties. However, the level of trust in the unit manager is largely dependent on whether the person is from a nursing or administration background. According to the manager at a well-established privatised hospital group (personal communication, February, 2013) nurses are more prone to trust unit managers that were previously nurses or have some form of nursing training, since these managers have a better idea of what it requires to be a nurse.

2.3.7 Summary

This section defined and discussed the relevant constructs of the JD-R model and explained which variables will represent the constructs in the measurement phase. The respective relationships and consequent hypotheses between the construct will now be explained.

2.4 RELATIONSHIPS BETWEEN THE CONSTRUCTS

The relationships between the various constructs will consequently be discussed and motivated. Work engagement forms the focal construct of the model, whereas the other

constructs represent the antecedents and outcomes of engagement. Since the aim of the study is to test the conceptual JD-R model of work engagement, the particular job and personal resources that were previously discussed will act as measurement variables of the higher order resource constructs stipulated in the original JD-R model (see Figure 2.1).

2.4.1 Relationships between job resources and personal resources

Hobfoll's Conservation of Resources (COR) theory states that people have a primary motivation to not only protect and maintain their available resources, but to accumulate additional resources (Bakker & Demerouti, 2007). This is also the case for the accumulation of both job and personal resources. Employees strive to accumulate and increase their job resources (autonomy, feedback from the job, task significance, and trust in a manager) and to increase their experienced levels of state-like personal resources (PsyCap). Resources are thus valuable in their own right, but also act as means to gather additional resources (Xanthopoulou et al., 2007).

Resources are believed to evolve in caravans, meaning that their existence bring about the accumulation of additional resources in the future, which have positive outcomes such as increased well-being and coping skills (Xanthopoulou et al., 2009a). Bakker (2011) agrees with this notion and further states that job and personal resources are mutually related and interact reciprocally to predict work engagement. Personal resources, such as hope, optimism, self-efficacy, and resilience (PsyCap) enable employees to mobilise the job resources within their work environment. Xanthopoulou et al. (2009a) argued that personal and job resources are reciprocally related, since employees form stronger evaluations about themselves through learning experiences, which in turn, allow them to create more resourceful work environments. Thus, personal resources are not only promoted by a conducive environment, but they may also determine the way in which employees perceive this environment and how they respond to it. For example, a resourceful work environment that provides the necessary job resources to perform well in a job, promote feelings of optimism, hope, self-efficacy, and resilience (PsyCap). Similarly, the presence of personal resources empowers an employee to actively mobilise job resources within the working environment. For example, employees who experience high levels of self-efficacy would more readily ask for the assistance of a manager (social job resource) on a difficult project, than those counterparts who are low on self-efficacy. Based on this mutual relationship between job and personal resources, the researcher hypothesises the following:

Hypothesis 1: Job resources have a significant positive effect on personal resources.

Hypothesis 2: Personal resources have a significant positive effect on job resources.

2.4.2 Relationship between job resources and work engagement

Job resources are motivational in nature and start a motivational process that foster employee growth, learning, development, engagement, and ultimately increased job performance (Xanthopoulou et al., 2007). Job resources enable employees to deal effectively with job and environmental demands, thus allowing employees to remain positive and motivated in their jobs (Bakker, 2011). Job resources not only buffer the negative effects of demands, but also gain saliency when job demands are high. Therefore, the more demanding the job becomes, the more employees mobilise and activate their available job resources which allow them to direct their attention to their work, and ultimately experience engagement. Job resources are vital antecedents of work engagement. Without job resources, employees would not be able to channel their attention to their work, or experience engagement, because they would be too occupied with dealing with the immediate demands and consequent strain of the job.

The relevant job resources included in this study are autonomy, feedback from the job, task significance, and trust in a manager, which all act as indicators of job resources in the model. As in the JD-R model, it is hypothesised that job resources have a strong positive relationship with work engagement.

Hypothesis 3: Job resources have a significant positive effect on work engagement.

2.4.3 Relationship between personal resources and work engagement

The first study that investigated the role of personal resources focused on optimism, self-efficacy, and organisation-based self-esteem. It was hypothesised that these particular personal resources mediated the relationship between job resources and work engagement (Xanthopoulou et al., 2007). Recently an increasing number of studies have concentrated on the direct role of personal resources in relation to work engagement. Herbert (2011) found that two of the PsyCap dimensions (optimism and self-efficacy) had significant relationships with work engagement, whilst the overall higher order PsyCap dimension also correlated significantly with engagement. Other personal resources that have been studied in relation to work engagement include a sense of coherence (Janse van Rensburg et al., 2013), personality dimensions (extraversion, conscientiousness, emotional stability), active coping styles, an achievement striving orientation, flexibility, adaptability, and adaptive perfectionism (Schaufeli, 2011).

Engaged workers can capitalise upon various personal resources that reflect a fundamental component of a person's adaptability (Xanthopoulou et al., 2007). It is therefore argued that personal resources have a direct effect on a person's choice on whether or not to engage in their work. The personal resources that are relevant in this study include hope, optimism, self-efficacy, and resilience (PsyCap). PsyCap and its four sub-dimensions will measure the personal resources construct of the JD-R model. It is hypothesised that personal resources have a positive relationship with work engagement.

Hypothesis 4: Personal resources have a significant positive effect on work engagement.

2.4.4 The moderating role of job demands on the resources-engagement relationships

Throughout the literature of the JD-R model, the moderating effect of job demands is stressed (Bakker, 2011; Demerouti & Bakker, 2011; Xanthopoulou et al., 2007). The interplay between job demands and resources is important because it influences the development (or lack thereof) of work engagement (Bakker & Demerouti, 2007). Different types of job demands and resources interact in predicting engagement. The JD-R model proposes that resources particularly influence motivation and engagement when job demands are high. This is because people want to obtain, retain, and protect the resources which they value (e.g. autonomy, feedback from the job, task significance, trust in a manager, and PsyCap). Thus, when high job demands threaten the loss of resources, people seek to not only protect those resources, but to increase them in order to buffer the effects of demands. Hobfoll (as cited in Bakker & Demerouti, 2007) argues that resource gain in itself only has a modest effect (on work engagement), but instead acquires saliency in the face of resource lost (due to job demands). This implies that resources gain their importance in predicting engagement when job demands are high. The moderating effect of job demands therefore suggests that the higher the levels of job demands are, the stronger the relationship between job resources and work engagement will be. The same is also true of personal resources; the higher the levels of job demands are, the stronger the relationship between personal resources and work engagement will be. Bakker and Demerouti (2014) review a study that investigated the effect of emotional demands on personal resources. The study found that emotional job demands strengthened the influence of personal resources on engagement. The following hypotheses are consequently relevant to the moderating effects of job demands:

Hypothesis 5: Job demands have a significant moderating effect on the relationship between job resources and work engagement.

Hypothesis 6: Job demands have a significant moderating effect on the relationship between personal resources and work engagement.

2.4.5 Relationship between work engagement and job performance

All the previous relationships have contributed to the degree to which a person experiences work engagement. The relationship that will now be discussed explains how work engagement contributes to job performance. According to Bakker (2011), engagement refers to determined energy that is directed towards task goals. Engaged employees are therefore prone to work harder, through increased levels of discretionary effort, compared to disengaged employees. Engaged workers are dedicated, absorbed, and vigorously involved in their jobs. They tend to concentrate on the tasks at hand, are happily engrossed in their work, experience enthusiasm and enjoy job-related challenges every now and then (Demerouti & Bakker, 2011). Bakker (2011) goes so far as to say that work engagement is a better predictor of performance than many other earlier constructs, such as job satisfaction. Schaufeli (2011) explains why engaged employees perform better than other employees. He says that engaged employees experience their work as fun and therefore are intrinsically motivated to perform better. Engaged individuals display pro-social behaviour that fosters cooperation and friendliness. Furthermore, because engaged employees enjoy their work, they experience positive emotions that result in better information processing and therefore also performance. Lastly, engaged employees are usually present at work (as opposed to absent) and consequently able to perform their required tasks.

Countless studies have validated the relationship between work engagement and job performance. Work engagement has been shown to have a positive relationship with in-role job performance (task performance), as well as extra-role performance (contextual performance) (Bakker, Demerouti & Verbeke, 2004). There are several reasons why this positive relationship is prevalent. Engaged employees think positive thoughts and are consequently more proactive towards their job and work environment (Bakker, 2011). Employees that are engaged feel the need to set personal and task related goals, thereby contributing to attainment of organisational goals, resulting in overall performance. Furthermore, engaged employees experience better psychological health, allowing them to channel more effort into their work. Energy expended by engaged employees has been found

to be much higher than that expended by employees who do not experience engagement (Bakker & Xanthopoulou, 2009). Engaged employees therefore feel more energetic about their work and consequently have more energy available for the execution of job tasks. Bakker (2011) notes that collective performance increases as work engagement is transferred between employees. Work engagement is therefore considered ‘contagious’ and as a result, team performance is also likely to increase. A study by Xanthopoulou, et al. (2009b) makes a convincing case for the predictive value of engagement in foreseeing performance on a day-to-day basis. This study implies that engagement not only manifests in job performance in the long run, but that engagement also fosters immediate short-term performance results. The researcher therefore, hypothesises a positive relationship between work engagement and job performance.

Hypothesis 7: Work engagement has a significant positive effect on job performance.

2.4.6 Relationship between job resources and job performance

Job resources provide a person with the tools to perform effectively in a job. Without the necessary resources, it would be extremely difficult to accomplish performance goals. Yet, the JD-R model does not hypothesise a direct relationship between job resources and job performance. A wide range of studies has researched the relationships between job resources and job performance; presented here are some of the results to illustrate this positive relationship.

A meta-analytic review of studies concerning autonomy found a significant relationship ($r = .26$) between autonomy and job performance (Spector, 1986, p. 1011). High levels of autonomy provide employees with the discretion and independence to determine work schedules and work methods, and the freedom to make independent decisions (Morgeson & Humphrey, 2006). Consequently, this enables employees to perform faster and more effectively. Similarly, Van den Berg and Feij (2003, p. 334) investigate the complex relationships between personality traits, job characteristics, and work behaviours. They found a significant path through Structural Equation Modelling between *feedback from the job* and job performance ($r = .22$). Feedback from the job provides clear and direct information regarding the effectiveness of task performance (Morgeson & Humphrey, 2006). This information is generated over the short-term and allows an employee to correct mistakes on a daily basis and improve insufficient job performance. It is therefore logical that feedback from the job will have a direct positive relationship with job performance.

Furthermore, *task significance* was found to increase levels of job performance after a sample of fundraising callers underwent a task-significance-intervention compared to callers in two other groups whom did not receive the intervention (Grant, 2008). If people feel that their jobs have significant impacts on the lives of others, either inside or outside of the organisation, it drives them to perform effectively. The experienced meaningfulness of jobs therefore motivates people to work harder, which will result in higher performance. Lastly, *trust in a manager* has been proposed to be an organisational characteristic that contributed to the competitive advantage of a company, and was found to be significantly related to profit, sales, and turnover (indicators of job performance) (Davis, Schoorman, Mayer, & Tan, 2000). It is maintained that when employees have trust in managers, they also experience a degree of responsibility towards managers. This responsibility facilitates the need to take ownership of and pride in one's work, which consequently drives job performance.

Based on the evidence and arguments presented above, it is argued that job resources relate directly to job performance and not only through the indirect mediating role of work engagement as proposed in the JD-R model. The researcher therefore proposes the inclusion of this additional path in the JD-R model (depicted with a '*' in Figure 2.2).

Hypothesis 8: Job resources have a significant positive effect job performance.

2.4.7 Relationship between personal resources and job performance

PsyCap, which represents personal resources, has been conceptually and empirically demonstrated to be related to several types of performance over the short and long term. Yet, the JD-R model does not conceptualise a direct relationship between personal resources and job performance. A longitudinal study by Peterson et al. (2011) found that PsyCap was related to two types of performance outcomes, namely financial and supervisory performance ratings. PsyCap therefore has a direct additive value on the bottom line of an organisation. Similarly, Luthans et al. (2007a, p. 564) found significant correlations between the overall PsyCap construct and performance. The first sample made use of a self-rated performance questionnaire ($r = .33$), while the second sample's actual performance data was used to correlate it with PsyCap scores ($r = .22$). Luthans et al. (2007a) explain that the higher-order core construct, PsyCap, represents a motivation propensity to accomplish tasks and set goals. They state that PsyCap represents "one's positive appraisal of circumstances and probability for success based on motivated effort and perseverance" (Luthans et al., 2007a, p. 550).

The presence of high levels of PsyCap signifies a motivational force that drives one's effort and determination due to feelings of hope, optimism, self-efficacy, and resilience. Extended effort and perseverance evidently result in a higher level of performance as perceived by the individual and manager. It is therefore argued that personal resources, represented by the overall core construct of PsyCap, relate positively to job performance. The researcher therefore proposes the inclusion of this additional path in the JD-R model (depicted with a red arrow in Figure 2.2).

Hypothesis 9: Personal resources have a significant positive effect on job performance.

2.4.8 Relationship between job performance and resources

Although the JD-R model conceptualises a feedback loop between job performance and resources through job crafting, to date there is only limited evidence in support of this path. The job-crafting variable plays a mediating role between job performance and resources. Furthermore, the working of the model does not clarify whether the feedback loop from job performance influences job or personal resources or both. However, Bakker (2010) states in his book about engagement that "...employees who are engaged and perform well are able to create their own resources" (Bakker, 2010, p. 239). The researcher therefore argues that employees who perform well are motivated to craft their jobs creatively, and through this process of crafting, inherently invest in their job and personal resources. Employees who are engaged in their work actively try to optimise their work environment by engaging in job crafting.

High levels of job performance provide employees with the confidence to engage in job crafting behaviour and therefore also to personalise their work and environment so that it better suits them (Tims & Bakker, 2010). Performing employees tend to display self-efficacy beliefs that activate task-, relational-, and meaning crafting to achieve a better person-job fit. In addition, employees who perform successfully tend to display proactive behaviour, which involves taking initiative through job crafting.

Employees who accomplish difficult goals are likely to experience feelings of competency, which are likely to reinforce how tasks are conceptualised and carried out (task crafting), how frequent and with whom employees interact at work (relational crafting), and how employees cognitively ascribe significance and meaning to their jobs (meaningfulness crafting) (Tims & Bakker, 2010). High performers consequently have a need to acquire additional job resources.

Job crafting behaviour allows employees to create these additional job resources in their environment through these types of crafting behaviours.

Similarly, the researcher argues that positive job performance appraisal results will act as a source of motivation that might foster the growth of an employee's personal resources. For example, when an employee's job performance results are high he or she is likely to experience increased levels of optimism, hope and self-efficacy. Bandura (1997) states that efficacy beliefs continue to develop over a person's lifespan based on different sources of information, the most important source being performance experiences. Successful performance experiences that can be attributed to one's own efforts will strengthen efficacy beliefs for that particular domain or behaviour. The strengthening of efficacy beliefs is here argued to be related to cognitive crafting (also known as meaning crafting). The researcher argues that job performance positively relates to job crafting, and that job crafting consequently influences job and personal resources.

Hypothesis 10: Job performance has a significant positive effect on job crafting.

Hypothesis 11: Job crafting has a significant positive effect on job resources.

Hypothesis 12: Job crafting has a significant positive effect on personal resources.

2.4.9 The moderating role of work engagement on the performance-crafting relationship

According to the JD-R model, the relationship between job performance and job crafting is moderated by work engagement (Bakker, 2011). An employee's level of work engagement influences the degree to which job performance will result in job crafting. This means that the higher the person's level of engagement, the higher the probability that job performance will affect the crafting behaviour of that person. However, no evidence in support of this moderating effect could be found. It is argued that work engagement plays a moderating role because it cultivates perceived opportunities to job craft since engagement encompasses vigour, dedication, and absorption in one's work. It is hypothesised that work engagement positively moderates the job performance – job crafting relationship.

Hypothesis 13: Work engagement has a significant moderating effect on the relationship between job performance and job crafting.

The hypotheses stated in this section can be presented in an elaborated version of the JD-R model as depicted in Figure 2.2.

2.5 CHAPTER SUMMARY

This chapter began with a brief overview of earlier job stress and motivation models from which the JD-R model has drawn. Secondly, the JD-R model and its components were defined and described in an in-depth literature review. The theoretical foundations of the constructs were also discussed in detail. Finally, the different relationships between the constructs were explained and the study's hypotheses were stated. The research-initiating question that culminated from the literature review and relevant theory therefore asks: "Do the constructs in the Job Demands-Resources model account for significant variance in work engagement of nurses?" The next chapter will present the methodology that was used to conduct the research and to investigate the stated hypotheses.

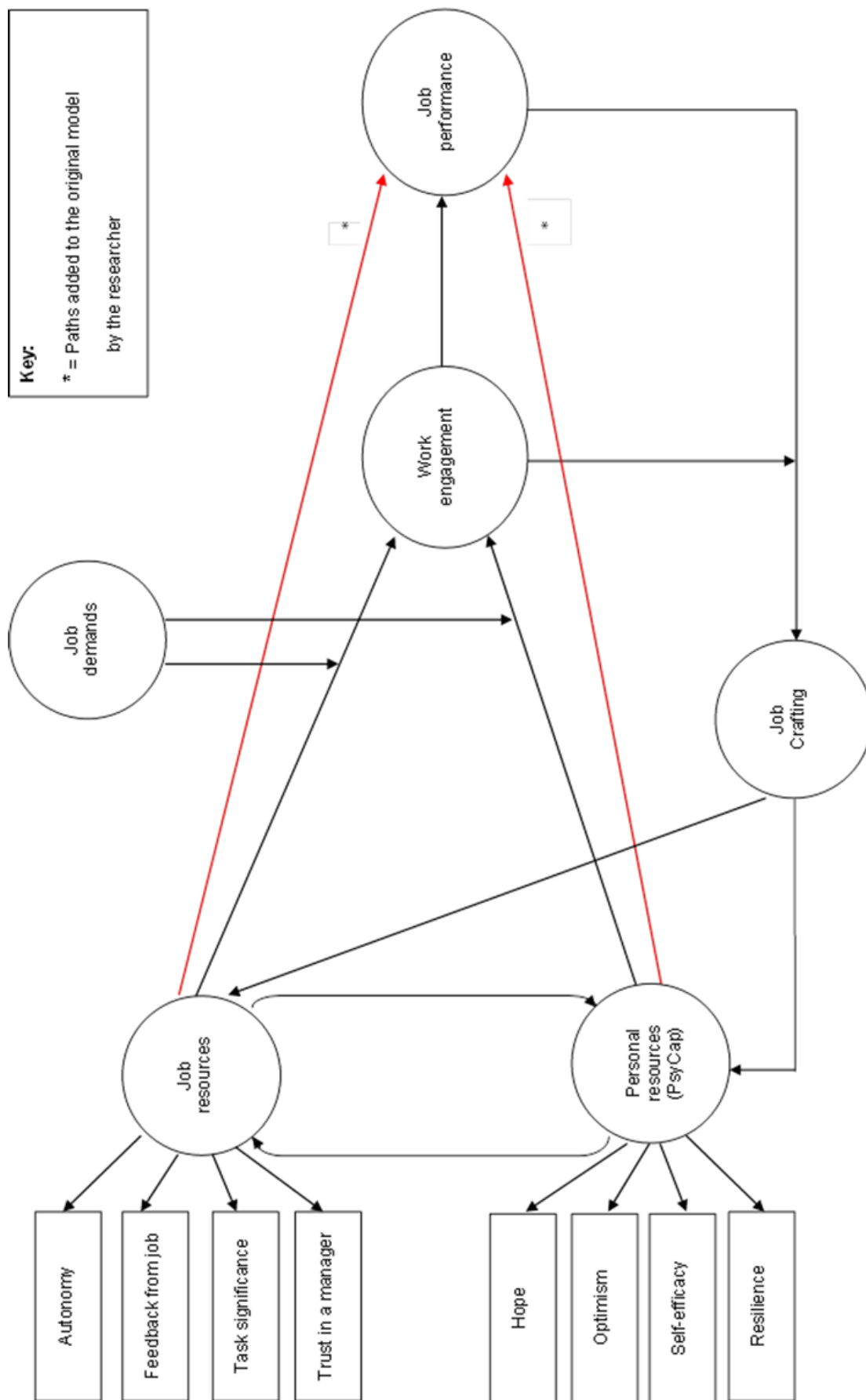


Figure 2.2. Theoretical JD-R model

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Following the literature review, this chapter describes the research methodology that was employed in the research process to obtain answers to the research-initiating question:

“Do the constructs in the Job Demands-Resources model account for significant variance in the work engagement of nurses?”

The research methodology should purposefully serve the epistemic ideal, i.e. the search for truthful knowledge (Babbie & Mouton, 2001). According to Theron (2014), the validity and credibility of the explanations derived from the proposed model is dependent on the method of inquiry used to arrive at the explanations. The probability of uncovering valid and credible verdicts is therefore a function of the methodology used. The scientific method as the method of inquiry serves the epistemic ideal through the control mechanisms of objectivity and rationality (Babbie & Mouton, 2001).

Before addressing the methodology that was used in this research study, it is advisable to revisit the study objectives (Swart, 2013). As mentioned previously, the primary objective of this research study was to test the comprehensive Job Demands-Resources model. The research study also aimed to:

- Test the comprehensive structural JD-R model and the validity of the proposed relationships between the constructs.
- Propose additional paths in the JD-R model.
- Determine the levels of job demands, job resources, personal resources, work engagement, performance and job crafting of a sample of private sector nurses.
- Highlight the results and managerial implications of the research findings and recommend practical interventions to the privatised hospital group that could increase or decrease the respective constructs with the aim to increase nurse retention.

This chapter focuses on the research hypotheses, research design, sample and participants, the operationalisation of the measurement instruments, missing values, and the statistical analyses techniques.

3.2 RESEARCH HYPOTHESES

3.2.1 Substantive research hypothesis

The proposed research methodology should serve the objectives of the study. The objective of this study is to test the relationships of the JD-R structural model, and to propose refinements to the model. The literature study discussed the variables and relationships that were proposed in the original version of the JD-R model, together with two additional relationships. This was reflected in the theoretical model that was presented in Figure 2.2.

The overarching substantive research hypothesis of this study (Hypothesis 1) states that the structural model provides a valid account of the psychological process that determines the variance in work engagement. The substantive research hypothesis can be divided into 13 more detailed path-specific substantive research hypotheses.

3.2.2 Path-specific research hypotheses

- Hypothesis 1:** Job resources have a significant positive effect on personal resources.
- Hypothesis 2:** Personal resources have a significant positive effect on job resources.
- Hypothesis 3:** Job resources have a significant positive effect on work engagement.
- Hypothesis 4:** Personal resources have a significant positive effect on work engagement.
- Hypothesis 5:** Job demands have a significant moderating effect on the relationship between job resources and work engagement.
- Hypothesis 6:** Job demands have a significant moderating effect on the relationship between personal resources and work engagement.
- Hypothesis 7:** Work engagement has a significant positive effect on job performance.
- Hypothesis 8:** Job resources have a significant positive effect on job performance.
- Hypothesis 9:** Personal resources have a significant positive effect on job performance.
- Hypothesis 10:** Job performance has a significant positive effect on job crafting.
- Hypothesis 11:** Job crafting has a significant positive effect on job resources.
- Hypothesis 12:** Job crafting has a significant positive effect on personal resources.
- Hypothesis 13:** Work engagement has a significant moderating effect on the relationship between job performance and job crafting.

3.3 STATISTICAL HYPOTHESES

The JD-R structural model (Figure 3.1) proposes paths between numerous exogenous and endogenous latent variables, also called dependent variables. The statistical hypotheses presented in this section are a representation of the logic underlying the structural model, the research design, and the nature of the statistical analysis techniques associated with an *ex post facto* correlational design (Theron, 2014). The statistical analysis technique appropriate for the analysis of data from an *ex post facto* correlational design is *Structural Equation Modelling* (SEM) (Joreskog & Sörbom, 1993). The SEM analysis can be carried out by means of several statistical packages. It was decided to use the LISREL statistical package. The notational system used in the formulation of the statistical hypotheses is therefore SEM.

When one compares the theoretical model (Figure 2.2) with the structural model (Figure 3.1) it becomes apparent that there are some differences. In Figure 3.1 additional variables can be seen, which represent the dummy variables. The way to test a moderating effect in SEM is to create a separate variable. This is done by multiplying the score of the moderating variable with the score of the ‘independent’ variable that is hypothesised to influence the ‘dependent’ variable (Little, Bovaird & Widaman, 2006).

The moderating variable (indicated with “*” in the circle) consequently becomes a dummy variable that directly influence the endogenous variable. The moderating variables in the model (Figure 3.1) should thus be understood as follows:

- $\xi_1 = \text{JD (job demands)} * \text{JR (job resources)}$ influence work engagement
- $\xi_2 = \text{JD (job demands)} * \text{PR (personal resources)}$ influence work engagement
- $\xi_3 = \text{WE (work engagement)} * \text{JP (job performance)}$ influence job crafting

The overall job demands score is thus multiplied with the job resources score to form a dummy variable with a score that can be used to determine a correlation with work engagement. The same was done for the other two variables too.

In order to evaluate how well the hypothesised structural model is a reproduction of the obtained data, the model has to be tested against an exact fit and close fit null hypothesis. An exact fit would mean that the structural JD-R model provides a precise reproduction of the psychological process that underpins work engagement in the JD-R model. This is precisely what the overarching research hypothesis is claiming (hypothesis of exact fit).

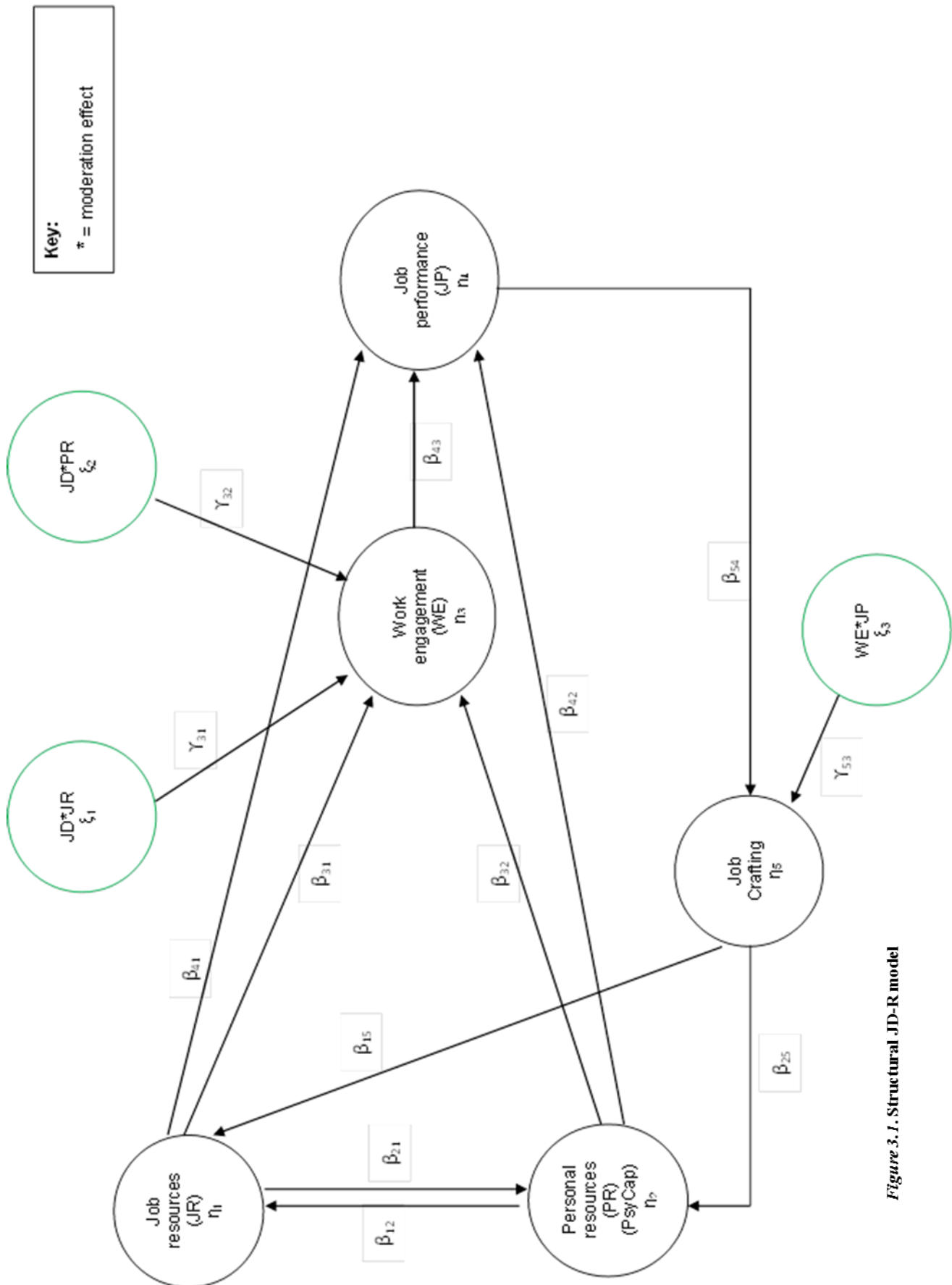


Figure 3.1. Structural JD-R model

$$H_0: \text{RMSEA} = 0$$

$$H_a: \text{RMSEA} > 0$$

However, the probability of a structural model achieving an exact fit is highly unlikely since it is merely a reproduction of reality and therefore rarely found within actual data (Theron, 2014). Alternatively, and more realistically, researchers aim to achieve close fit, thereby acknowledging the error of approximation. In the case where the significance of the error due to approximation within the population is equal to or less than a p-value of .05, it can be interpreted that the model is a close reproduction of reality, and is stated as follows (hypothesis of close fit):

$$H_0: \text{RMSEA} \leq .05$$

$$H_a: \text{RMSEA} > .05$$

The overarching research hypothesis concerning the overall fit of the model was consequently tested through the hypotheses of exact and close fit. Additionally, because the model fitted the observed data reasonably well, each of the causal paths was tested. The path-specific hypotheses are described in terms of SEM notation and are presented below.

Hypothesis 1: Job resources have a significant positive effect on personal resources.

$$H_{01}: \beta_{21} = 0$$

$$H_{a1}: \beta_{21} > 0$$

Hypothesis 2: Personal resources have a significant positive effect on job resources.

$$H_{02}: \beta_{12} = 0$$

$$H_{a2}: \beta_{12} > 0$$

Hypothesis 3: Job resources have a significant positive effect on work engagement.

$$H_{03}: \beta_{31} = 0$$

$$H_{a3}: \beta_{31} > 0$$

Hypothesis 4: Personal resources have a significant positive effect on work engagement.

$$H_{04}: \beta_{32} = 0$$

$$H_{a4}: \beta_{32} > 0$$

Hypothesis 5: Job demands have a significant moderating effect on the relationship between job resources and work engagement.

$$H_{05}: \Upsilon_{31} = 0$$

$$H_{a5}: \Upsilon_{31} > 0$$

Hypothesis 6: Job demands have a significant moderating effect on the relationship between personal resources and work engagement.

$$H_{06}: \Upsilon_{32} = 0$$

$$H_{a6}: \Upsilon_{32} > 0$$

Hypothesis 7: Work engagement has a significant positive effect on job performance.

$$H_{07}: \beta_{43} = 0$$

$$H_{a7}: \beta_{43} > 0$$

Hypothesis 8: Job resources have a significant positive effect on job performance.

$$H_{08}: \beta_{41} = 0$$

$$H_{a8}: \beta_{41} > 0$$

Hypothesis 9: Personal resources have a significant positive effect on job performance.

$$H_{09}: \beta_{42} = 0$$

$$H_{a9}: \beta_{42} > 0$$

Hypothesis 10: Job performance has a significant positive effect on job crafting.

$$H_{010}: \beta_{54} = 0$$

$$H_{a10}: \beta_{54} > 0$$

Hypothesis 11: Job crafting has a significant positive effect on job resources.

$$H_{011}: \beta_{15} = 0$$

$$H_{a11}: \beta_{15} > 0$$

Hypothesis 12: Job crafting has a significant positive effect on personal resources.

$$H_{012}: \beta_{25} = 0$$

$$H_{a12}: \beta_{25} > 0$$

Hypothesis 13: Work engagement has a significant moderating effect on the relationship between job performance and job crafting.

$$H_{013}: \Upsilon_{53} = 0$$

$$H_{a13}: \Upsilon_{53} > 0$$

3.4 RESEARCH DESIGN

Any research inquiry includes a planning and an execution stage. Black (as cited in Herbert, 2011) emphasises the importance of the planning stage within the research process, as it will determine the success of the execution stage. The research design serves as a plan on how the actual research and data collection will be executed. It is not chosen at random, but is rather a product of the type of research initiating question, research objectives, and the empirical evidence needed to test the hypotheses.

The research design that was used in this study is a non-experimental *ex post facto* correlational design. According to Theron (2014), this type of design is utilised when the relationships between variables are observed without any form of manipulation and/or control. This may be due to the fact that 1) the researcher is not able to control or manipulate the variables, or 2) the manifestation of the phenomena has already occurred. In short, participants are not randomly assigned and variables are not manipulated.

The aim of this design is to measure all the variables and determine how much variance in work engagement can be explained by the other variables and their hypothesised relationships with engagement, by testing the comprehensive JD-R model. The nature of the *ex post facto* correlational design allows for the drawing of inferences from path coefficients that are significant. Correlations between variables do not necessarily suggest causation (Burger, 2011). Significant correlations are therefore evidence that one variable has a relationship with another, but one cannot infer that the one influences (causes) the other. The *ex post facto* correlational design is able to, through the researcher's attempts and the utilisation of certain techniques, maximise systematic error variance, minimise error variance and control for extraneous variance (Theron, 2014).

The study is based on a relational approach that investigates how two or more variables are related to one another. The *ex post facto* data have certain weaknesses that are inherent to non-experimental data (Kerlinger & Lee, 2000). Firstly, the researcher is not able to manipulate the data. Secondly, the inability to randomise is also considered a weakness.

Thirdly, poor interpretation is a potential pitfall. This being said, this type of design is very prominent in psychology due to the fact that most of the phenomena that occurs in this field are not suitable for controlled environments or manipulation. Despite the weaknesses, this design was used, while keeping in mind the potential impact these drawbacks can have.

This study relied on correlational techniques to determine the direction and strength of the hypothesised relationships. These techniques determine the degree to which the variables are closely related. According to Tabachnick and Fidell (2007), the advantages of correlational designs include 1) that it investigates research questions that cannot be explored by means of experimental procedures; 2) and that it allows for the determination of the strength between variables. The disadvantage is that it demonstrates correlation between variables and not causation (cause and effect).

3.5 SAMPLE AND PARTICIPANTS

Sampling involves the selection of a sub-set, or segment, of the total population (Babbie & Mouton, 2001). For the purposes of this research study, the data needed to be collected from South African nurses. A senior manager of a private hospital group was approached to discuss the possibility to collect the data for the study from the hospital group. After the initial discussion, a PowerPoint presentation was sent to him via email and he forwarded it, after writing a recommendation, to the Nursing Director. A meeting was also held with her. After the hospital group accepted the final proposal, an Informed Consent Form was submitted and ethical clearance was granted by the Stellenbosch University. The operational managers of several of the hospital group's hospitals in the Western Cape were contacted to invite the nurses to participate in the study.

Sampling identification can be done with one of two techniques, namely probability (i.e. random, stratified, cluster and systematic sampling) and non-probability sampling (i.e. quota, purposive, convenience/availability sampling) (Struwig & Stead, 2001). The sampling technique that was used to select the sampling unit was *non-probability convenience sampling*. This technique is called this because subjects are selected based on their convenient accessibility and proximity to the researcher (Babbie & Mouton, 2001). This sampling technique was utilised due to practical limitations (the survey was handed out as a paper copy due to the fact that many nurses did not have access to e-mail) and organisational time constraints (limited time for data collection and research endeavours on the part of the hospital group).

According to Burger (2011), three aspects need to be considered when a researcher determines the sample size when SEM is used as the analysis technique, namely: the *ratio* of the sample size to the number of parameters to be estimated; the *statistical power* associated with the test of the hypothesis of close fit ($RMSEA \leq .05$) against an alternative hypothesis of mediocre fit ($RMSEA > .05$); and the *practical and logical* considerations like cost, and availability of suitable respondents. Kelloway (1998) suggests that 200 observations for a research study would suffice when SEM is used as the method of statistical analysis.

In light of the above-mentioned guidelines, the researcher approached numerous of the private group's hospitals in the Western Cape. Seven hospitals agreed to participate in the study with a total of 1635 nurses employed at these hospitals. A total of 311 nurses completed the survey, which resulted in a response rate of 19%. Table 3.1 provides a summary of the biographical information of the sample.

3.6 MEASUREMENT INSTRUMENTS

Every latent variable within the structural model needs to be measured by an instrument that is able to provide empirical evidence against which hypotheses can be tested. However, to come to valid and reliable conclusions through the obtained results, the instruments utilised need to possess the necessary psychometric qualities. The measurement instruments operationalise the constructs by making them measureable. Diamantopoulos and Siguaw agree with this by explaining that, "unless we can trust the quality of our measurements, then any assessment of the substantive relations of interest will be problematic" (2000, p. 89). A composite questionnaire was compiled which consisted of questions from different existing questionnaires.

The composite self-administered questionnaire consisted of five sections (see Appendix A). The first section dealt with the biographical information from participants. Sections two to five measured the relevant variables. Six validated questionnaires were utilised to measure the constructs for the purpose of this study. Some variables were measured by an entire questionnaire, whereas other variables were measured by certain relevant parts of a questionnaire.

Table 3.1*Biographical Information of the Sample Population (N = 311)*

Age		
Minimum, Maximum, Most Frequent	Mean	Standard Deviation
18; 62; 51	41	14.4
Gender		
Variables	Frequency	Percentage
<i>Female</i>	295	94.9%
<i>Male</i>	16	6.8%
Ethnic group		
Variable	Frequency	Percentage
<i>African</i>	36	11.6%
<i>Asian</i>	14	4.5%
<i>Coloured</i>	124	39.9%
<i>White</i>	137	44%
Citizenship		
Variable	Frequency	Percentage
<i>South African</i>	302	97.1%
<i>Other</i>	9	2.9%

The measurement instruments that were utilised include the Utrecht Work Engagement Scale 17-item version (UWES-17) (Schaufeli & Bakker, 2003); the Job Demands-Resources Survey (Rothman et al., 2006), the Work Design Questionnaire (WDQ) (Morgeson & Humphrey, 2006); Mayer and Davis' adapted trust scale (Schoorman & Ballinger, 2006); the Psychological Capital Questionnaire Self-Rated Version (PCQ-24) (Avey et al., 2010); and the Job Crafting scale (JCS) (Tims et al, 2012). The instruments and the empirical evidence needed to support the psychometric integrity of the instruments are discussed in the subsequent section.

3.6.1 Work engagement

The Utrecht Work Engagement Scale (UWES) was used to measure individuals' levels of work engagement. According to Schaufeli & Bakker (2003), several versions of the UWES exist, which differ in terms of length. This study utilised the UWES-17, which consists of 17 items – all of the questions were used. The scale is anchored in a seven-point Likert scale ranging from 0 (never) to 6 (always/daily). The scale measures the three underlying factors constituting work engagement, namely vigour (six items), dedication (five items), and absorption (six items). None of the items were reversed scored.

The UWES is a well-researched instrument, which has been used in studies comprising various occupational groups and job levels. Work engagement's factorial validity has been tested through Confirmatory Factor Analyses (CFA) that has shown that the three-factor structure is superior to a one or two-factor structure (Nerstad, Richardsen & Martinussen, 2010). According to Schaufeli and Bakker (2003, p. 26), the psychometric properties of the UWES-17 were investigated using an international database, consisting of nine countries of which South Africa was one. The total sample consisted of 12 631 people from 10 occupational groups. The UWES-17 showed excellent internal consistency reliabilities (Cronbach's Alphas) and are as follows (Bakker & Schaufeli, 2003):

Table 3.2

Cronbach's α of the UWES-17 Subscales

Subscale	Cronbach's α
<i>Vigour</i>	.82
<i>Dedication</i>	.89
<i>Absorption</i>	.83
Total of scale	.93

As can be seen from the table, all the values are above Tabachnick and Fidell's (2013) recommended value of .60. The composite UWES-17 score was used as the measurement for work engagement.

3.6.2 Job demands

The job demands construct was measured by means of a sub-dimension of the Job Demands-Resources Scale (JD-RS) (Rothman et al., 2006). This particular sub-dimension measures work overload (pace and amount of work, mental load, and emotional load) with eight items.

The JDRS uses a four-point Likert scale (1 = never; 4 = always). According to Rothman et al. (2006, p. 83), the Cronbach's Alpha for the work overload sub-dimension was found to be .76 in a sample of 2717 South African employees from different organisation. This reflects good internal consistency reliability (Tabachnick & Fidell, 2013). The eight items measured the job demands construct.

3.6.3 Job resources

Autonomy, feedback, and task significance were all measured by means of Morgeson and Humphrey's (2006) Work Design Questionnaire (WDQ). Only these sub-dimensions of the WDQ were used. The questionnaire conceptualises autonomy in terms of scheduling autonomy (three items), decision-making autonomy (three items), and work method autonomy (three items) – all nine items were used. Feedback was measured through three items and task significance was measured through four items. The items are anchored in a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The WDQ was validated on a sample of 540 people that held 243 distinct jobs (Morgeson & Humphrey, 2006, p. 1321). The reported Cronbach's Alphas are as follow:

Table 3.3

Cronbach's α of the WDQ Subscales

Subscale	Cronbach's α
<i>Work scheduling autonomy</i>	.85
<i>Decision-making autonomy</i>	.85
<i>Work methods autonomy</i>	.88
<i>Feedback</i>	.86
<i>Task significance</i>	.87

Evident again from Table 3.3, is that all of the values are above Tabachnick and Fidell's (2013) recommended value of .60.

Trust in manager was measured by means of Mayer and Davis' adapted trust scale. The scale was adapted by Schoorman and Ballinger (2006). Six items of the adapted scale were used. Items five and six were reverse-scored. The items are anchored in a five-point frequency scale (1 = strongly disagree, 5 = strongly agree). The adapted trust scale produced a Cronbach's Alpha value of .84 in a sample of veterinary employees (Schoorman et al., 2007, p. 348).

The scores of the autonomy, feedback, task significance, and trust in manager sub-dimensions were used as a composite measure of the job resources construct.

3.6.4 Personal resources

The personal resources construct was measured by means of the Psychological Capital Questionnaire Self-Rated Version (PCQ-24), which contains 24 items (Luthans et al., 2007a). The questionnaire consists of four subscales, namely hope, optimism, self-efficacy, and resilience. Each of the subscales is measured by six items. This instrument is anchored in a six-point Likert scale with response options varying from 1 (strongly disagree) to 6 (strongly agree). The composite score measured an individual's level of PsyCap and consequently represented the personal resources construct. Items 13, 20 and 23 were reverse-scored. A study by Avey et al. (2010, p. 445) yielded the following internal consistency reliabilities (Cronbach's α):

Table 3.4

Cronbach's α of the PCQ-24 Subscales

Sub scale	Cronbach's α
<i>Hope</i>	.87
<i>Optimism</i>	.78
<i>Self-efficacy</i>	.92
<i>Resilience</i>	.83
Total	.95

Once again, it is evident that all of the values are above Tabachnick and Fidell's (2013) recommended value of .60. A study by Görgen-Ekermans and Herbert (2013, p. 7) on a South African sample ($N = 202$) found lower internal reliabilities (hope = .81, self-efficacy = .83, optimism = .67, and resilience = .69), and argues that the lower reliabilities of especially the hope and self-efficacy subscales are due to the reversed nature of items 13, 20 and 23. The scores from the four subscales of the PCQ-24 were used as a composite score for the personal resources construct.

3.6.5 Job crafting

The job crafting construct was measured by means of the Job Crafting Scale (JCS) consisting of 21 items which are measured on a five-point Likert scale (1 = never, 5 = often) (Tims, Bakker & Derks, 2012). The instrument has four subscales, namely: *Increasing structural job*

resources (five items), *Decreasing hindering job demands* (six items), *Increasing social job resources* (five items), and *Increasing challenging job demands* (five items). None of the items were reverse-scored. According to Tims et al. (2012, p. 177), Exploratory Factor Analysis (EFA) was conducted on the scale using a Dutch sample ($N = 375$). The reported Cronbach Alpha's for the subscales were as follows:

Table 3.5

Cronbach's α of the JCS Subscales

Sub scale	Cronbach's α
<i>Increasing structural resources</i>	.82
<i>Decreasing hindering job demands</i>	.79
<i>Increasing social job resources</i>	.77
<i>Increasing challenging job demands</i>	.75

The reliabilities of the subscales were good and above Tabachnick and Fidell's (2013) recommended value of .60. The scores of the four subscales were used as a composite measure of the job crafting construct.

Performance data will be used to assess employees' job performance. Each one of these measurement instruments will be discussed in detail below. Figure 3.1 depicts the model with measurement scales.

3.6.6 Job performance

The job performance construct was quantified using the nurses' previous job performance appraisal data. The job performance appraisal was conducted by the nurses' respective unit managers. The data is therefore more objective than self-report data, but is still considered as subjective data. Another disadvantage of using previous job performance appraisal data is that it is historic in nature. Unfortunately, time constraints did not allow the nurse managers to collect new performance data. The nurses were asked to fill in their most recent job performance appraisal score (a score out of seven) in the first part of the research questionnaire. According to M. Kidd (personal communication, January, 2014), job performance data cause problems in empirical studies due to the fact that performance appraisal measures are not scrutinised to conform to the principles of validity and reliability. These types of measures are usually not standardised or empirically developed and therefore

usually result in insignificant results. Given these shortcomings, it was decided to include this measure, since no other viable option existed within the available timeframe.

3.7 MISSING VALUES

The probability of encountering missing values is great when survey data is used. This is due to non-response and/or absenteeism (in the case of longitudinal designs) of participants and can influence empirical results greatly if it is not dealt with before the analysis of the data commences. According to Schafer and Graham (2002), methods can be utilised to deal with missing value problems and depend on the number of missing values, the pattern of missing data, as well as the nature of the data e.g. normalised or non-normalised data. Methods to rectify the problems associated with missing values range from data deletion (list-wise deletion and pair-wise deletion) to data imputation (multiple imputations, imputation by matching, and full information maximum likelihood imputation).

In this study, several participants ($N = 16$) did not complete major parts of the questionnaire. The fact that the questionnaire had to be given out as a paper copy, created the potential that participants could leave out parts or not complete the questionnaire. Consequently, the researcher used list-wise deletion (deletion of the participant's entire record) to deal with this type of missing data. None of the 16 participants' datasets were included in the study. Moreover, 3 participants did not complete the total survey (one participant left out some questions in the job resources section, and two participants each left out some questions in the job crafting section). This missing data was dealt with by means of pair-wise deletion where the researcher omits the specific missing values from the analysis (not the entire case). In other words, all available data is included in the analysis while the statistical software program recognises the missing values and takes it into account.

3.8 STATISTICAL ANALYSIS

Different techniques were used to analyse the data, namely item analysis, Confirmatory Factor Analysis (CFA), and Structural Equation Modelling (SEM). Each of these analysis techniques will be explained.

Before a researcher can proceed to test the actual hypotheses, the data must first be analysed to determine whether the instruments' items functioned satisfactorily, and whether the instruments' subscales/items fitted onto the constructs they were supposed to measure. Item

analysis and CFA were employed to test this respectively. SEM was used to test the significance of the hypotheses.

3.8.1 Item analysis

A specific instrument (as discussed in Section 3.6) measures a latent variable within the structural model. The purpose of these instruments is to measure individuals' standing on each of the constructs. The items in the questionnaires act as stimuli, with an aim to elicit participants' responses in terms of the behaviour of the underlying constructs. The item responses therefore record the behaviour that underlie the construct and consequently make the behaviour "observable" in the form of data. However, items can be poor at eliciting a response. Various ways exist in which items can be poor, namely they can be insensitive, inconsistent or portray a poor interpretation of the construct (Theron, 2014). A process called item analysis can be utilised to identify poor items through item statistics. The practice of item analysis is used to determine the quality and internal consistency reliability of the items of the respective scales.

Literature suggests that reliabilities (Cronbach's Alpha) of .60 or higher are sufficient (Tabachnick & Fidell, 2013). Depending on the results of the item analysis and the nature of the poor items (if such items are present), the choice should be made whether to transform or delete the items from the instrument or respective scale(s) (Theron, 2014). If the overall reliability of an instrument or sub-scale shows significant improvement after selected items has been deleted, they are excluded from subsequent analyses. The researcher however does not agree with deleting items. Item analysis is performed in SPSS.

3.8.2 Confirmatory Factor Analysis

Contrary to Exploratory Factor Analysis that explores the number of factors underlying a construct, CFA allows the researcher to formulate and test hypotheses regarding the underlying factor structure of a construct (Buys, Olckers & Schaap, 2007). The measurement model is therefore a reflection of the researcher's hypothesis regarding the underlying factor structure.

CFA tests whether the measurement model sufficiently operationalises the structural model. Operationalisation is successful if the measurement model reflecting the design intention and constitutive definition of the latent variable shows close fit ($RMSEA \leq .05$), the estimated factor loadings are all statistically significant ($p < .05$) and, in the completely standardised solution, the factor loadings are large and the measurement error variances are statistically

significant ($p < .05$) but small (Theron, 2014). CFA is commonly used to evaluate measurement model fit and produces a series of model fit indices used to determine how the observed data fit the measurement model (Kelloway, 1998). LISREL 8.80 is used to perform the CFA.

3.8.2.1 Interpretation of measurement model fit and parameter estimates

The measurement model's fit reflects the ability of the model to reproduce the observed covariance matrix. The model is considered to fit well if the reproduced covariance matrix approximates the observed covariance matrix (Theron, 2014). The interpretation of the model is evaluated by considering the full range of fit indices provided by LISREL (Diamantopoulos & Sigauw, 2000). Regardless of these, the magnitude and distribution of the standardised residuals, and the model modification indices are calculated and deliberated for ΛX , $\Theta\delta$ and $\Theta\epsilon$.

According to Theron (2014), large modification index values indicate the existence of possible measurement model parameters that could improve the fit of the proposed model. The model modification indices of the matrices were scrutinised to determine whether parameters existed that the researcher did not consider. No such parameters were found.

3.8.3 Structural Equation Modelling

In order to use SEM as the statistical method for testing hypotheses, certain assumptions need to be met. Firstly, the data is treated as continuous, and secondly, multivariate normality of the data is assumed.

3.8.3.1 Variable type

SEM assumes that the variable type is continuous although the data responses are measured on an interval level. The observed covariance matrix can only be analysed if the data is treated as continuous and the assumption of multivariate normality is met.

3.8.3.2 Multivariate normality

According to Theron (2014), LISREL uses maximum likelihood estimation to test whether the proposed structural model converges, i.e. is able to produce results. LISREL however assumes that the measurement variables that were used to operationalise the latent variables follow a multivariate normality (normal distribution). LISREL tests the null hypothesis related to this assumption. When the data does not follow a multivariate normality distribution, normalisation of the data should be attempted by means of robust maximum

likelihood estimation. If the Chi Square statistic increases, it shows that the robust maximum likelihood estimation did not work and that the data analysis should rather be performed on the non-normalised data set that has other assumptions.

3.8.3.2 Interpretation of the structural model fit and parameter estimates

The fit of the structural model were interpreted in view of the full range of fit indices (Diamantopolous & Sigauw, 2000). In addition, the magnitude and distribution of model modification indices (for Γ , \mathbf{B} and Ψ) were also considered. Large modification indices indicate that structural model parameters, if set free, will improve the fit of the proposed model. If many large and significant modification indices are discovered, it will reflect negatively on the fit of the model, because it will suggest that numerous possibilities exist to improve the fit of the proposed structural model. Parameter modifications may only be made if they make substantive theoretical sense.

The model modification indices were evaluated with the purpose of investigating the possibility of other relevant parameters. The modification indices indicated that no parameters were found to be of significance.

3.9 CHAPTER SUMMARY

Chapter 3 has provided a description of the methodological choices that were made throughout the research process to obtain answers to the research initiating question and consequent hypotheses. In summary, an *ex post facto* correlational research design was used to collect primary data specifically for the purposes of this research study. Non-probability, convenience sampling was used to select an appropriate sample. Quantitative data was collected from nurses in the Western Cape using a self-administered paper copy questionnaire. Instruments included in the questionnaire were the Utrecht Work Engagement Scale (UWES-17) (Schaufeli & Bakker, 2003), the Job Demand Resources Scale (JDERS) (Rothman et al., 2006), the Work Design Questionnaire (WDQ) (Morgeson & Humphrey, 2006), the adapted trust scale of Schoorman and Ballinger (2003), the Psychological Capital Questionnaire (PCQ-24) (Avey et al., 2010), and the Job Crafting Scale (Tims et al., 2012). Item analysis, CFA, SEM and regression analyses were used to analyse the data and test the hypothesised relationships. The LISREL 8.80 and SPSS software packages were used to perform the aforementioned analyses. The next chapter presents the research findings from the statistical analyses and their interpretation.

CHAPTER 4

RESULTS

4.1 INTRODUCTION

The purpose of this chapter is to present and discuss the statistical results of the various analyses that were performed in this research study. Firstly, an item analysis was performed to determine the psychometric soundness of the measurement instruments that were used to represent the various latent variables. Thereafter, confirmatory factor analyses (CFA) were conducted to evaluate the measurement models' fit. After establishing an acceptable measurement model fit, a path analysis of the structural model was fitted to determine structural model fit. Selected paths were supplemented by regression and multiple regression analyses. Lastly, the final scores and hypotheses were interpreted.

4.2 VALIDATING THE MEASUREMENT MODEL

4.2.1 Item analysis

An item analysis, carried out in SPSS provided an initial indication of the value of the various measurement scales. Table 4.1 presents a summary of the item analysis results for each of the measurement scales.

Table 4.1

Means, Standard Deviations and Internal Consistency Reliabilities

Scale	Sample size	Number of items	Mean of scales	Standard deviation	Cronbach's α	Average inter-item correlation
Job Resources	310	22	3.79	.52	.61	.28
Job Demands	311	8	3.14	.46	.77	.30
Personal Resources	311	24	4.51	.50	.72	.40
Work Engagement	311	17	4.57	.89	.73	.49
Job Crafting	309	21	3.82	.48	.83	.20

The Cronbach's Alphas¹ of internal consistency were moderate to good ($\geq .60$). This was corroborated by acceptable average inter-item correlations.

4.2.1.1 Job Resources

The Job Resources scale produced a Cronbach Alpha coefficient of .61, which indicated acceptable internal consistency reliability. The Job Resources scale had four subscales, namely Autonomy, Feedback, Task Significance and Trust. The Feedback, Task Significance and Trust subscales each produced one item that negatively impacted the Cronbach Alphas of the subscales. However, the deletion of these items would only have improved the Alphas marginally and therefore did not warrant those items' deletion.

The average inter-item correlation obtained for the Job Resources scale was .28, which showed acceptable reliability. The same individual items in the Feedback, Task Significance and Trust subscales that decreased the Cronbach Alphas, proved to decrease the inter-item correlations too. The individual items of the Trust subscale showed low inter-item correlations, ranging from -.02 to .43.

Overall, the Trust subscale was found to be a poor measurement scale; however it was decided to keep the scale in the subsequent analyses based on the principle of research transparency and due to the fact that the participants had already filled in this subscale as part of the composite research questionnaire.

4.2.1.2 Job Demands

The Job Demands scale attained a Cronbach Alpha coefficient of .77, which indicated excellent internal consistency reliability. None of the individual items would have increased this coefficient if they were to be deleted. Therefore, no deletions were necessary.

The average inter-item correlation for the Job Demands scale was .30, which indicated acceptable reliability. The individual inter-item correlations ranged from .34 to .57.

4.2.1.3 Personal Resources

The Psychological Capital scale (PsyCap-24) obtained a Cronbach Alpha coefficient of .72, which indicated excellent internal consistency reliability. The PsyCap scale consisted of four subscales, namely Self-Efficacy, Hope, Resilience and Optimism. The Hope subscale had one item that could marginally improve the coefficient upon deletion. The Resilience subscale

¹ The Cronbach's Alpha measures internal consistency reliability. According to Tabachnick and Fidell (2013), scores of $\geq .60$ are acceptable.

showed one poor item, and the Optimism subscale showed two poor items. It was noted that the poor items in both the Resilience and Optimism subscales were reversed items. It was speculated that the reversed nature of those items caused participants some confusion. Deletion of the above mentioned items were not warranted, since they would only have improved the Cronbach Alpha coefficient marginally.

The inter-item correlation of the PsyCap-24 scale was .40, which indicated acceptable reliability. Once again, the same poor items mentioned above showed poor inter-item correlations, ranging from -.03 to .31. No items were deleted due to the same reason as mentioned above.

4.2.1.4 Work engagement

The Utrecht Work Engagement Scale (UWES-17) attained a Cronbach Alpha coefficient of .73, which indicated exceptional internal consistency reliability. The UWES-17 scale consisted of three subscales, namely Vigour, Dedication and Absorption. None of the individual items impacted the coefficient negatively and therefore no items were deleted.

The average inter-item correlation for the total scale was .49, which indicated acceptable reliability. The individual inter-item correlations ranged between .43 and .76.

4.2.1.5 Job Crafting

The Job Crafting Scale produced a Cronbach Alpha coefficient of .83, which also indicated excellent internal consistency reliability. The scale consisted of four subscales, namely Increasing Structural Job Resources, Decreasing Hindering Job Demands, Increasing Social Job Resources, and Increasing Challenging Job Demands. Deletion of any of the individual items in the scale would have impacted the coefficient negatively.

The average inter-item correlation for the total scale was .20, which indicated acceptable reliability. The individual inter-item correlations ranged between .23 and .54. These inter-item correlations were considered acceptable. The result obtained from the split-half reliability procedure (Guttman split-half coefficient = .84) validated the previous finding (Guttman, 1945).

4.2.1.6 Decision regarding the reliability of latent variables

The purpose of the preceding item analysis was to evaluate the functioning of each of the latent variables and to assess the psychometric integrity of the indicator variables of the latent variables.

The results of the item analysis provided satisfactory evidence to support the inclusion of the items in the measurement instruments. All of the items were found to be internally consistent and reliable at an acceptable level. Each of the Cronbach Alpha coefficients was above .60. The deletion of poor individual items would only have improved the Cronbach Alpha coefficient of certain scales marginally. These possible marginal improvements did not warrant the deletion of those items and it was therefore decided to keep them all. The average inter-item correlations of the scales ranged between .20 and .49. These results were acceptable. The only scale that showed to be problematic was the Trust subscale of the latent variable, Job Resources. One reason why this subscale perhaps performed poorly is because two of the six items were scored reversely. This implies that one third of the subscale was answered uncertainly (the results of the whole data set showed that participants continuously were unsure how to respond to reversed items indicated by low inter-item correlations). The contribution of this subscale to the overall Job Resources scale (six items out of 22) was rather small and the researcher was advised to keep this subscale in the subsequent analyses (M. Kidd, personal communication, January, 2014).

It was concluded that the results of the item analysis was satisfactory and therefore the subsequent analyses were performed and are reported. It was decided to keep all items as they were and not to delete any, despite the possibility of marginal improvement of the Job Resources sub-scale.

4.2.2 Measurement model evaluation

LISREL 8.80 was used to perform a CFA to determine the fit of the measurement instruments. Due to the small sample size ($N = 311$) relative to the number of latent variables and the hypothesised paths, it was decided to run separate measurement models for the respective latent variables. Measurement models for all the latent variables were run except for the Job Performance variable².

² This was due to the fact that the performance score was a historical, one-dimensional, subjective managerial performance score that was provided by the participants. This would have resulted in a single-indicator variable where the indicator latent variable would have λ fixed to 1, and the corresponding measurement error δ fixed to 0, because it is assumed that no measurement error exist (Byrne, 2013).

The CFA was done in order to investigate the goodness-of-fit between the measurement models and the obtained data by testing the hypotheses of exact fit ($RMSEA = .00$) and close fit ($RMSEA \leq .05$). The root mean square error of approximation (RMSEA) value indicates the amount of discrepancy between the observed population co-variance matrix and the estimated population co-variance matrix implied by the measurement model per degree of freedom (Hooper, Coughlan & Mullen, 2008). Generally, values smaller than .05 indicate good model fit, values between .05 and .08 indicate reasonable fit, values between .08 and .10 indicate mediocre fit, and values bigger than .10 indicate poor fit (Diamantopoulos & Siguaw, 2000; Kelloway, 1998).

The Goodness-of-Fit Index (GFI) is an absolute measure, which measures the amount of variance and covariance explained by the model compared with the null model (Diamantopoulos & Siguaw, 2000). The Adjusted Goodness-of-Fit Index (AGFI) is similar, but it adjusts for the number of degrees of freedom in the specified model (i.e. accounts for parsimony). Both indices range from 0 to 1, with values close to 1 and $> .90$ being indicative of good fit (Hooper et al., 2008).

The goodness-of-fit statistics, supplemented by the GFI and AGFI values, were investigated. Additionally, the factor loadings were investigated by looking at the Completely Standardised Lambda matrices. Items were interpreted to load sufficiently on the scale when factor loadings above .50 were obtained (Steenkamp & Van Trijp, 1991).

4.2.2.1 Job Resources measurement model

The goodness-of-fit statistics showed a Satorra-Bentler Chi Square value of 547.65 ($p = .00$). The null hypothesis of exact model fit ($RMSEA = .00$) was therefore rejected. The null hypothesis for close model fit ($RMSEA \leq .05$) was also rejected based on the fact that the RMSEA value was equal to .074. The measurement model did however prove to fit reasonably well ($.05 < RMSEA < .08$). The GFI (.97) and AGFI (.96) values echoed good model fit.

Figure 4.1 shows the factor loadings (completely standardised Lambda-Y values) of the items onto the subscales. As can be seen, four items from the Trust scale loaded poorly onto the scale ($< .50$). Item 5 and 6 of the Trust scale showed to be negative. It was suspected that the reversed nature of the items caused these loadings to turn out negative. All the other loadings in Figure 4.1 showed to load sufficiently onto their subscales ($> .50$). Most of the subscales

showed to load sufficiently onto the latent variable, Job Resources. The only subscale that proved to fit mediocrely was Task Significance.

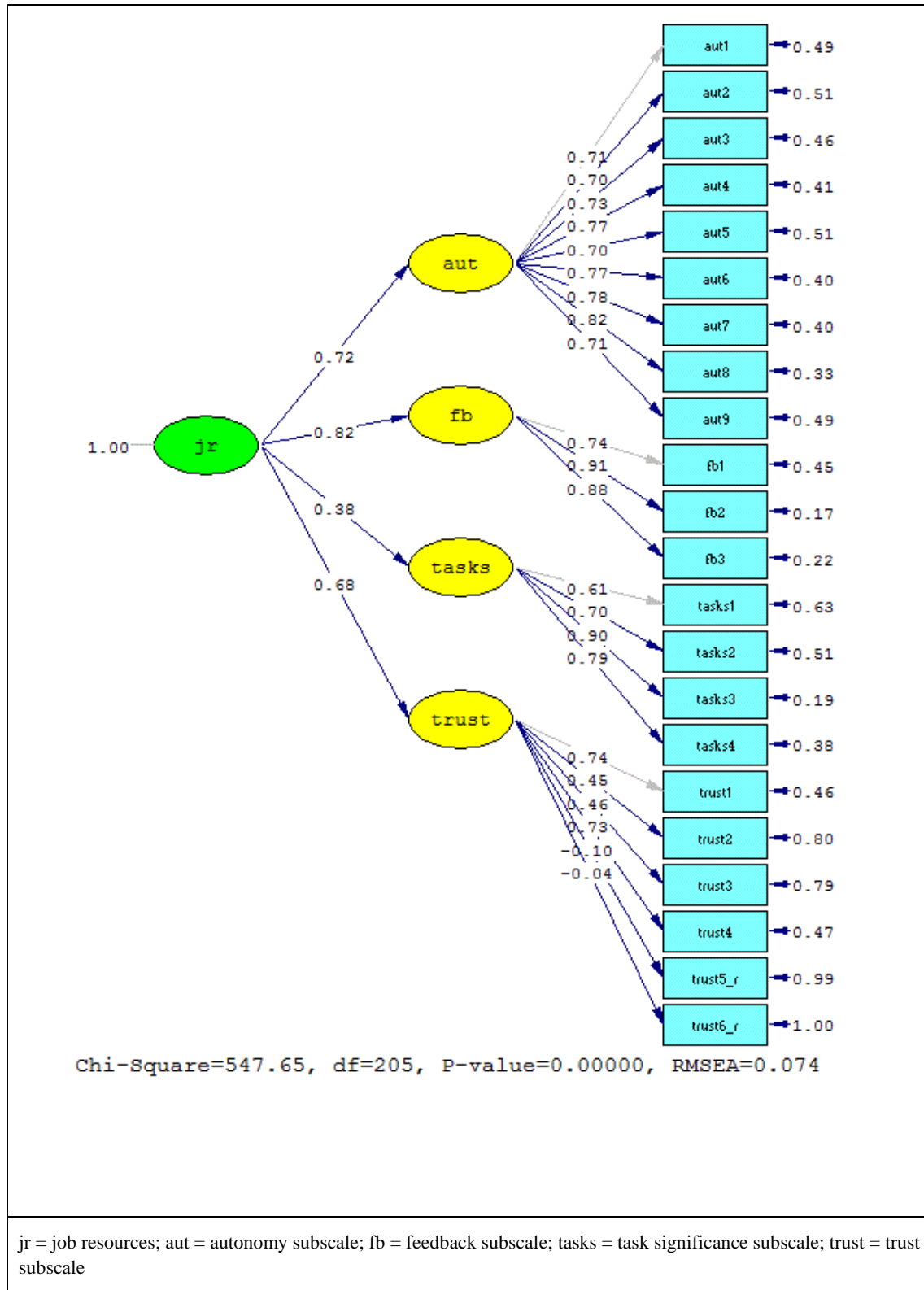


Figure 4.1. Job Resources measurement model.

Taking the abovementioned results into consideration, the overall fit of the model was acceptable. Despite the poor fit of some items, and one subscale, it was concluded that the Job Resources measure functioned sufficiently.

4.2.2.2 Job Demands

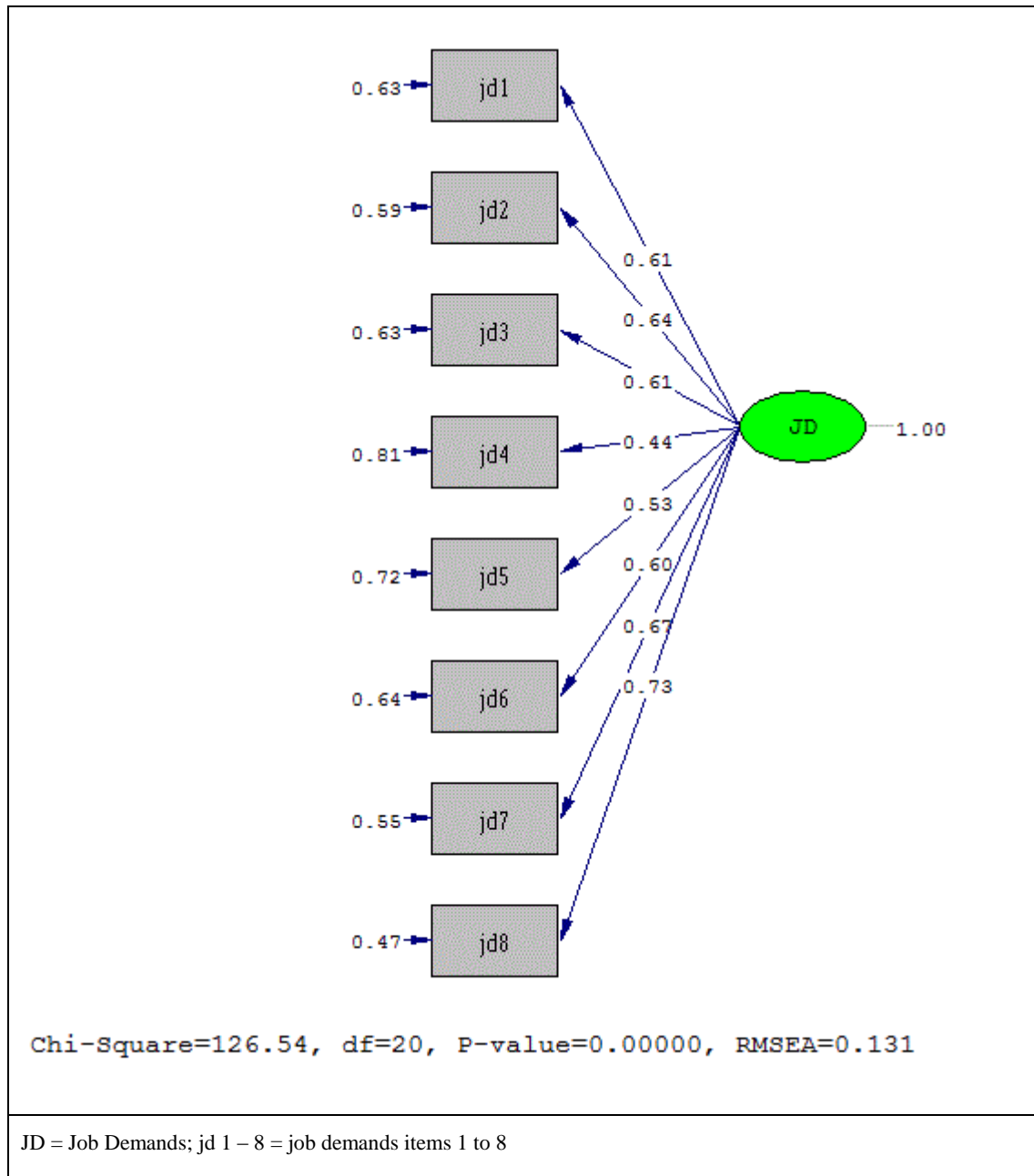


Figure 4.2. Job Demands measurement model

Figure 4.2 shows a graphical representation of the fitted Job Demands measurement model. The goodness-of-fit statistics showed a Satorra-Bentler Chi Square value of 126.54 ($p = .00$). The null hypothesis of exact model fit ($RMSEA = .00$) was therefore rejected. The null hypothesis for close model fit ($RMSEA \leq .05$) was also rejected because the RMSEA value

was equal to .131. The measurement model thus fitted poorly ($RMSEA > .10$). However, the GFI (.96) and AGFI (.93) values showed good model fit.

All the item loadings (completely standardised Lambda-X values) as evident in Figure 4.2 were above the .50 guideline, except for item 4 (jd4). This indicated that seven out of the eight items loaded sufficiently onto the Job Demands measurement. Moreover, all the t-values of the items exceeded the critical cut-off values ($t > |1.96|$).

In conclusion, although the RMSEA value indicated poor fit, the other cumulative evidence suggests acceptable fit. Another important aspect that was taken into account was the fact that the Job Demand score was not utilised on its own. Because this construct only acted as a moderator, the standardised Job Demands score was multiplied with the standardised score of the respective independent variable (either Job Resources or Personal Resources) to determine the moderation effect on the dependent variable (Work Engagement). Therefore, although the Job Demands' measurement fit was only acceptable, it was not alarming based on the fact that this measurement was used in conjunction with others.

4.2.2.3 Personal Resources

Figure 4.3 shows a graphical representation of the fitted Personal Resources measurement model. The goodness-of-fit statistics showed a Satorra-Bentler Chi Square value of 545.24 ($p = .00$). The null hypothesis of exact model fit ($RMSEA = .00$) was therefore rejected. The null hypothesis for close model fit ($RMSEA \leq .05$) was also rejected based on the fact that the RMSEA value was equal to .062. This value indicated that the measurement model did, however, prove to fit acceptably ($.05 < RMSEA < .08$). The GFI (.96) and AGFI (.95) values also confirmed the acceptable fit for the model.

The items' loadings showed that six items loaded poorly onto their respective subscales ($< .50$). However, three out of the six items (res13_r, opt20_r, opt23_r) were scaled negatively. It was suspected that the reversed nature of the items caused them to either load very poorly or to even have negative loadings. All the other items' loadings showed to load sufficiently onto their subscales ($> .50$). All of the factor loadings (completely standardised Gamma values) showed that the subscales loaded well onto the latent variable, Personal Resources.

Taking the abovementioned results into consideration, the overall fit of the model was acceptable to good. Despite the poor fit of some items, it was concluded that the Personal Resources measure functioned sufficiently.

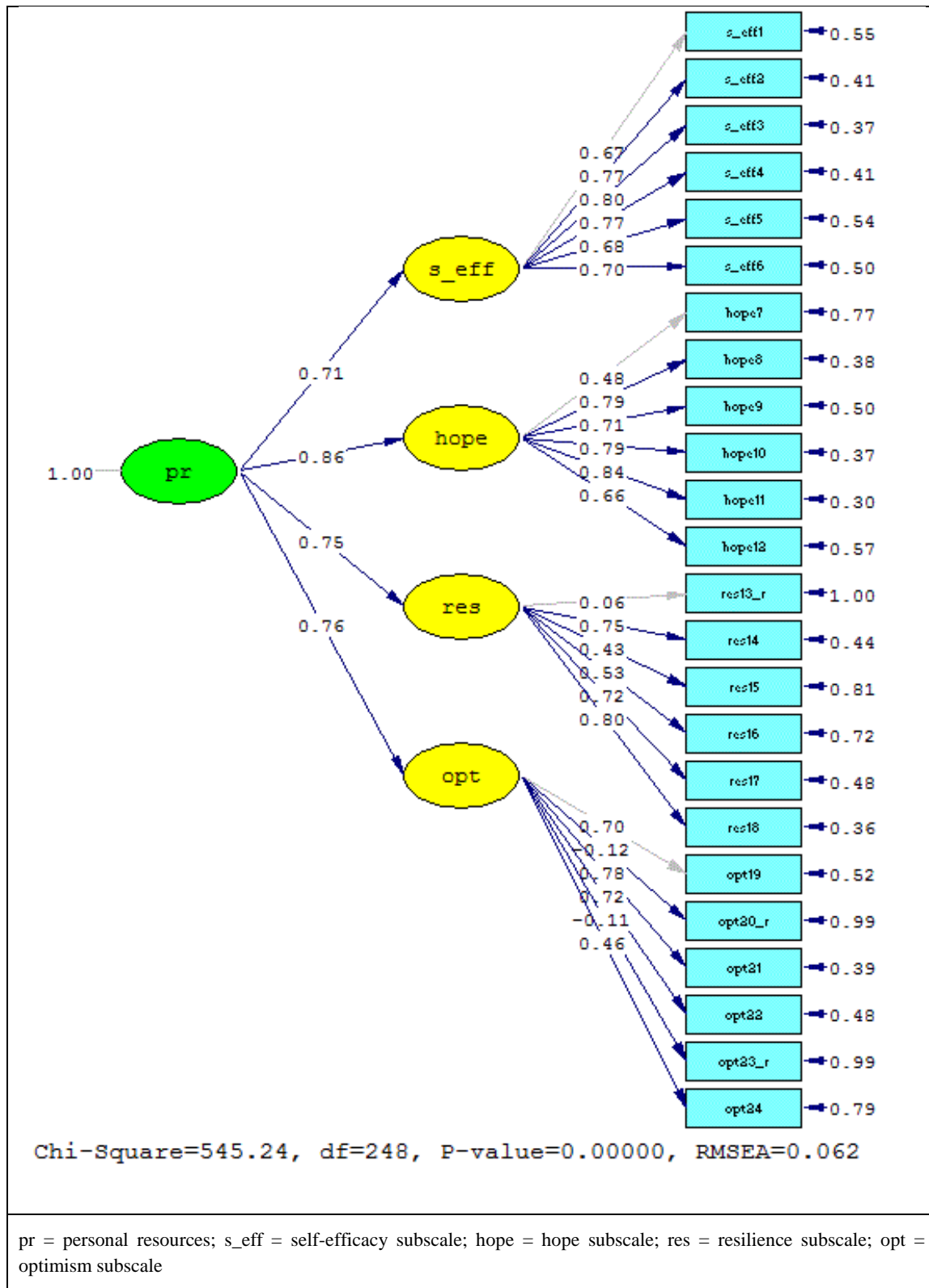


Figure 4.3. Personal Resources measurement model

4.2.2.4 Work Engagement

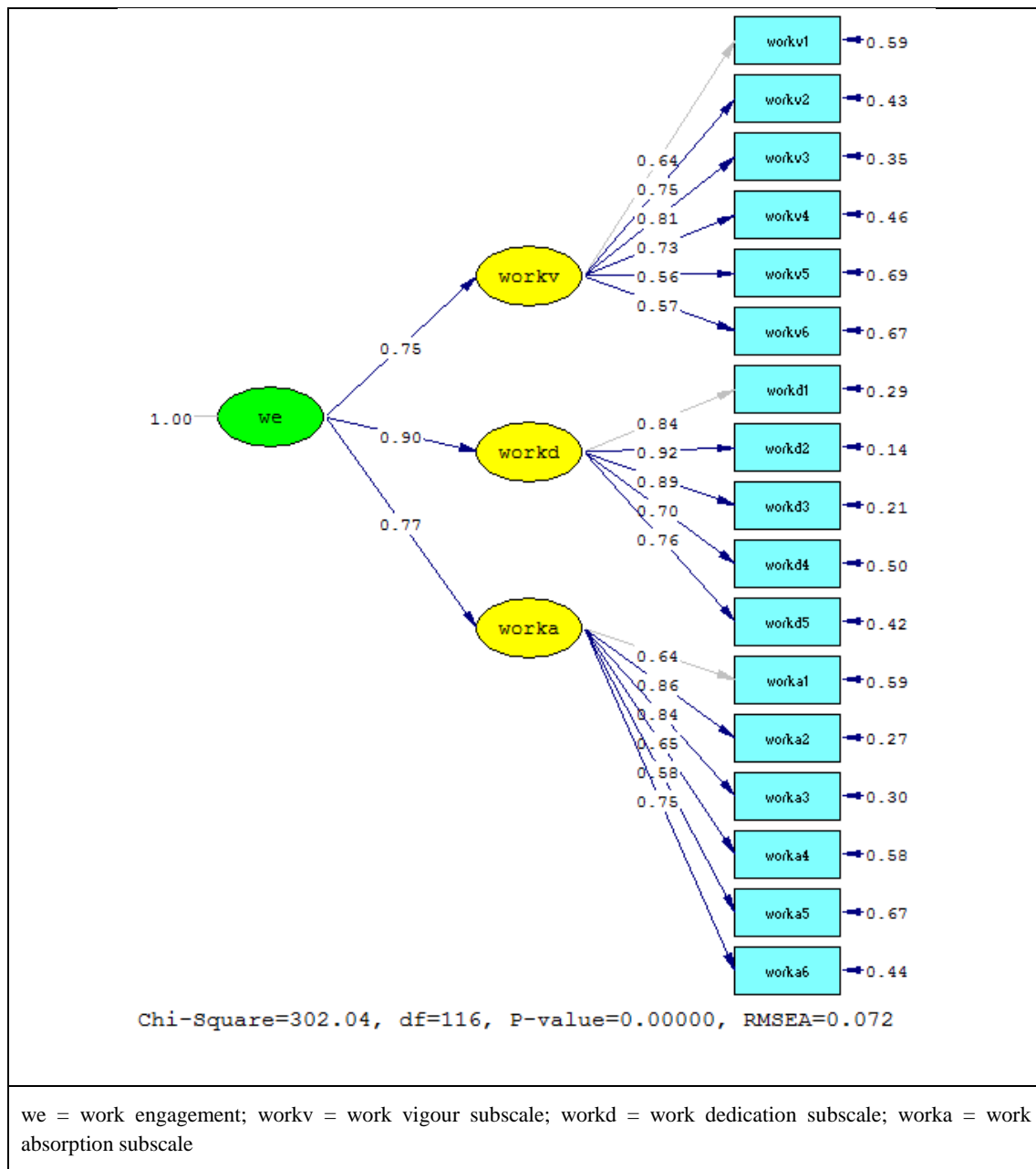


Figure 4.4. Work Engagement measurement model

The goodness-of-fit statistics showed a Satorra-Bentler Chi Square value of 302.04 ($p = .00$). The null hypothesis of exact model fit ($RMSEA = .00$) was consequently rejected. The null hypothesis for close model fit ($RMSEA \leq .05$) was also rejected due to the fact that the RMSEA value was equal to .072. The measurement model was therefore considered to be acceptable ($.05 < RMSEA < .08$). The GFI (.98) and AGFI (.97) values echoed the acceptable fit for the model.

All the items' loadings (completely standardised Lambda-Y values) visible in Figure 4.4 loaded well ($> .50$) onto their respective subscales. Similarly, all of the factor loadings

(completely standardised Gamma values) showed that the subscales loaded well onto the latent variable, namely Work Engagement.

In conclusion, the results indicated that the Work Engagement measurement model functioned well.

4.2.2.5 Job Crafting

The goodness-of-fit statistics showed a Satorra-Bentler Chi Square value of 512.60 ($p = .00$). The null hypothesis of exact model fit ($RMSEA = .00$) was consequently rejected. The null hypothesis for close model fit ($RMSEA \leq .05$) was also rejected due to the fact that the RMSEA value was equal to .076. The measurement model was therefore considered to fit acceptably ($.05 < RMSEA < .08$). The GFI (.95) and AGFI (.94) confirmed acceptable fit for the model.

Except for one (JCS5), all the item loadings (completely standardised Lambda-Y values) visible in Figure 4.5, loaded well ($> .50$) onto their respective subscales.

In conclusion, the results indicated that the Job Crafting measurement model functioned well.

4.2.2.6 Job Performance

A measurement model evaluation for the Job Performance construct could not be done since this construct was measured by means of subjective, one-dimensional historic job performance scores. It could therefore not be determined how well the job performance scores fitted the Job Performance construct.

4.2.2.7 Decision regarding the measurement models' fit

Overall, all the measurement models fitted at an acceptable level. The Trust subscale of Job Resources showed to have some poor items, although the factor loaded sufficiently onto the latent construct. Despite the fact that Job Demands' RMSEA value (.131) was considered poor, the items showed to load sufficiently onto the construct and it was therefore decided to keep the model as it was. Based on the principal of research transparency, all of the measures were kept exactly as they were used within the data collection stage. No subscales/items were deleted to improve the measurement model fit.

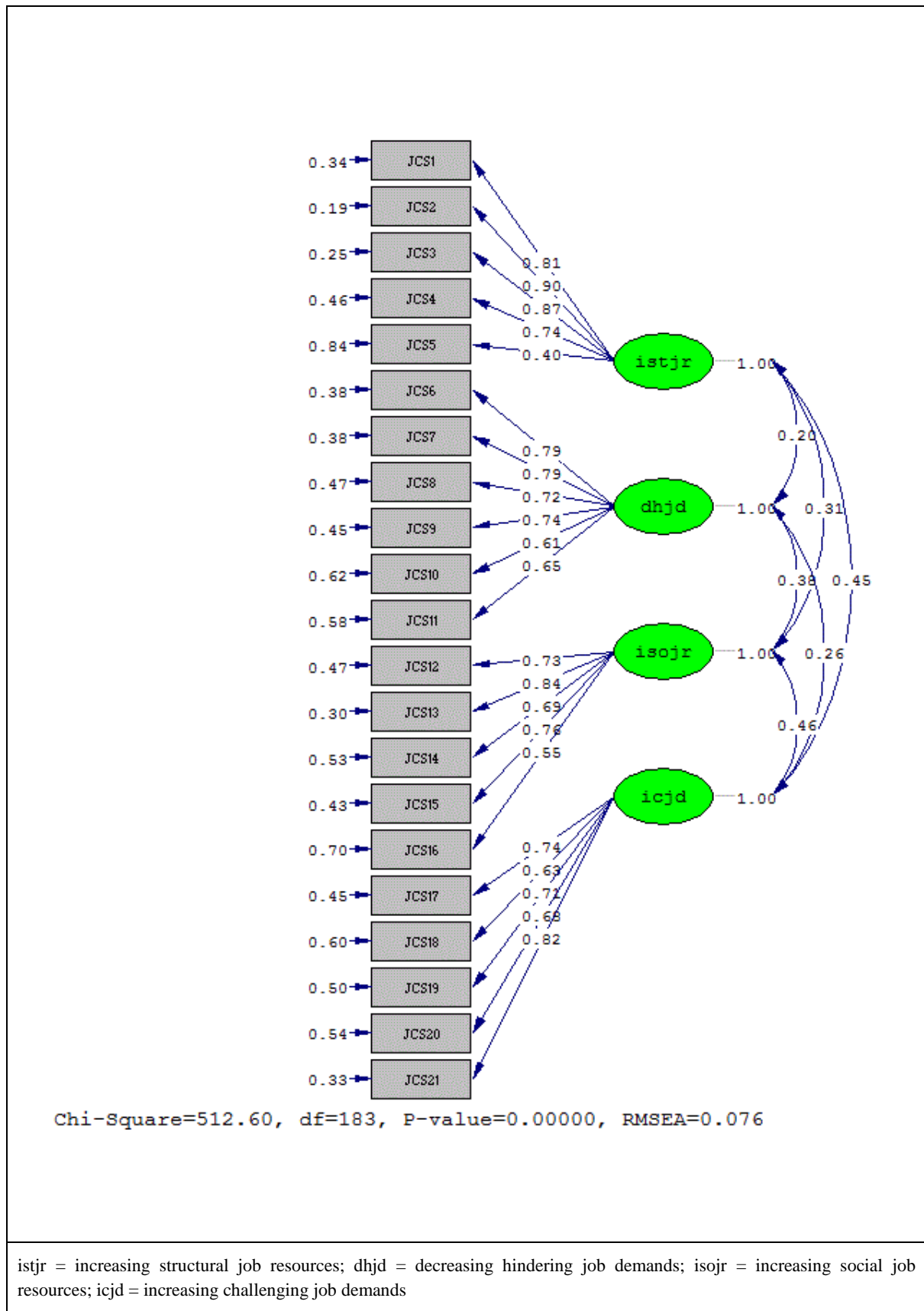


Figure 4.5. Job Crafting measurement model

4.3 TESTING THE STRUCTURAL MODEL

4.3.1 Fitting the structural model

The structural model specifies the hypothesised relationships between the respective latent variables. Structural Equation Modelling (SEM) in LISREL 8.80 was used to test the structural model. Before the strength and significance of the path coefficients could be investigated, the structural model had to be evaluated to determine whether the data fits the hypothesised model satisfactorily. This was done by first testing the exact fit of the data to the hypothesised model ($RMSEA = .00$). The ideal of exact fit is very rarely achieved and therefore this hypothesis is almost always rejected (Theron, 2014). Thereafter, the close fit of the data to the hypothesised model was tested ($RMSEA \leq .05$).

The goodness-of-fit statistics revealed a Satorra-Bentler Chi-Square value of 38.08 ($p = .001$). Consequently, the null hypothesis of exact model fit ($RMSEA = .00$) was rejected. The gathered data therefore did not fit the hypothesised model exactly as predicted. The p-value for the test of close fit was .14 and the null hypothesis of close fit was therefore also rejected ($RMSEA \leq .05$). The actual RMSEA value of .067 indicated reasonable fit ($.05 < RMSEA < .08$) for the data. The GFI (.97) and the AGFI (.92) also indicated good to acceptable model fit.

4.3.1.1 Decision regarding the structural model

The fitting of the structural model indicated that the data fitted the hypothesised model reasonably ($RMSEA = .067$). The GFI and AGFI supported this notion. It was therefore decided to proceed with the interpretation of the subsequent statistical analyses.

4.3.2 Investigating path coefficients

After fitting the structural model, the strength and significance of the path coefficients were investigated to evaluate the hypotheses. Table 4.2 and 4.3 provide the respective unstandardised beta and gamma estimates of the hypothesised relationships. The magnitude of the estimates was important in determining the significance of the hypotheses. The statistical significance of the estimate is evaluated against the critical cut-off values of the t-statistic ($t > |1.96|$). A significant beta or gamma estimate would entail that the related H_0 hypothesis will be rejected in favour of the relevant H_a hypothesis. The direct paths between the latent variables will firstly be discussed with reference to Table 4.2, whereafter the moderator paths will be discussed with reference to Table 4.3.

4.3.2.1 Evaluation of the direct paths in the structural model

The hypotheses without moderation effects will be discussed here (in other words, all hypotheses except hypotheses 5, 6 and 13).

Table 4.2

T-statistic and Standardised Beta Estimate

Variable	JR	PR	WE	PERF	JC
JR	-	6.71**	-	-	3.48**
		.36**			.19**
PR	4.09**	-	-	-	4.16**
	.89**				.25**
WE	.77	7.93**	-	-	-
	.04	.44**			
PERF	.07	.20	-.64	-	-
	.00	.01	-.04		
JC	-	-	-	-1.00	-
				-.06	

JR = Job Resources; PR = Personal Resources; WE = Work Engagement; PERF = Job Performance; JC = Job Crafting

** $p < .05$ (statistically significant at the 95 percent confidence level)

- **Hypothesis 1: Job resources have a significant positive effect on personal resources.** The t-statistic of 4.09 well exceeded the critical cut-off t-value ($t > |1.96|$). The null hypothesis was therefore rejected in favour of the alternative hypothesis ($H_{a1}: \beta_{21} > 0$). The standardised beta coefficient of .89 indicated a strong positive and **statistically significant** relationship between job and personal resources.
- **Hypothesis 2: Personal resources have a significant positive effect on job resources.** The t-statistic of 6.71 well exceeded the critical cut-off t-value ($t > |1.96|$). The null hypothesis was therefore rejected in favour of the alternative hypothesis ($H_{a2}: \beta_{12} > 0$). The standardised beta coefficient of .36 indicated a strong positive and **statistically significant** relationship between personal and job resources.
- **Hypothesis 3: Job resources have a significant positive effect on work engagement.** The t-statistic of .77 did not exceed the critical cut-off t-value ($t > |1.96|$). The null hypothesis was therefore not rejected ($H_{03}: \beta_{31} = 0$). The data indicated that this hypothesised relationship was statistically **not significant**.

- **Hypothesis 4: Personal resources have a significant positive effect on work engagement.** The t-statistic of 7.93 well exceeded the critical cut-off t-value ($t > |1.96|$). The null hypothesis was therefore rejected in favour of the alternative hypothesis ($H_{a4}: \beta_{32} > 0$). The standardised beta coefficient of .44 indicated a strong positive and **statistically significant** relationship between personal resources and work engagement.
- **Hypothesis 7: Work engagement has a significant positive effect on job performance.** The t-statistic of -.64 did not exceed the critical cut-off t-value ($t > |1.96|$). The null hypothesis was therefore not rejected ($H_{07}: \beta_{43} = 0$). The standardised estimate (-.04) not only indicated that this hypothesised relationship was statistically **not significant**, but also showed that a negative relationship was present.
- **Hypothesis 8: Job resources have a significant positive effect on job performance.** The t-statistic of .07 did not exceed the critical cut-off t-value ($t > |1.96|$). The null hypothesis was therefore not rejected ($H_{08}: \beta_{41} = 0$) and the hypothesised relationship was therefore statistically **not significant**. The standardised beta coefficient of .00 indicated that almost no relationship between job resources and job performance was present.
- **Hypothesis 9: Personal resources have a significant positive effect on job performance.** The t-statistic of .20 did not exceed the critical cut-off t-value ($t > |1.96|$). The null hypothesis was therefore not rejected ($H_{09}: \beta_{42} = 0$) and the hypothesised relationship was therefore statistically **not significant**. The standardised beta coefficient of .01, similarly to hypothesis 8, indicated that almost no relationship between personal resources and job performance was present.
- **Hypothesis 10: Job performance has a significant positive effect on job crafting.** The t-statistic of -1.00 did not exceed the critical cut-off t-value ($t > |1.96|$). The null hypothesis was therefore not rejected ($H_{010}: \beta_{54} = 0$). The data not only indicated that this hypothesised relationship was statistically **not significant**, but also showed that a negative relationship was present.
- **Hypothesis 11: Job crafting has a significant positive effect on job resources.** The t-statistic of 3.48 well exceeded the critical cut-off t-value ($t > |1.96|$). The null hypothesis was therefore rejected in favour of the alternative hypothesis ($H_{a11}: \beta_{15} > 0$). The standardised beta coefficient of .19 indicated a positive and **statistically significant** relationship between job crafting and job resources.

- **Hypothesis 12: Job crafting has a significant positive effect on personal resources.** The t-statistic of 4.16 well exceeded the critical cut-off t-value ($t > |1.96|$). The null hypothesis was therefore rejected in favour of the alternative hypothesis ($H_{a12}: \beta_{25} > 0$). The standardised beta coefficient of .25 indicated a strong positive and **statistically significant** relationship between job crafting and personal resources.

In conclusion, hypotheses 1, 2, 4, 11 and 12 were found to be statistically significant, whilst hypotheses 3, 7, 8, 9 and 10 showed not be statistically significant. Noteworthy is the fact that four out of the five insignificant relationships were related to the job performance construct. This leads to the conclusion that the job performance construct's measure was problematic. One reason might be the subjective nature of this measure (an un-standardised managerial performance rating).

4.3.2.2 Evaluation of the moderating paths in the structural model

Table 4.3 provides the un-standardised and standardised gamma estimates used to evaluate whether the null hypotheses of hypotheses 5, 6 and 13 should be rejected in favour of the alternative hypotheses.

Table 4.3

T-statistic and Standardised Gamma Estimate

Variable	JD_JR	JD_PR	WE_PERF
WE	-2.72** -.15**	2.39** .09**	-
JC	-	-	.82 .04

JC = Job Crafting; WE = Work Engagement; JD = Job Demands; PERF_WE = Job Performance and Work Engagement moderator variable; JR_JD = Job Resources and Job Demands moderator variable; PR_JD = Personal Resources and Job Demands moderator variable

** $p < .05$ (statistically significant at the 95 percent confidence level)

- **Hypothesis 5: Job demands have a significant moderating effect on the relationship between job resources and work engagement.** The t-statistic of -2.72 exceeded the critical cut-off t-value ($t > |1.96|$) and the null hypothesis was therefore rejected in favour of the alternative hypothesis ($H_{a5}: \gamma_{31} > 0$). This provided evidence that job demands moderate the relationship between job resources and work engagement. The negative sign of the estimate indicated that the lower the amount of job demands, the stronger the relationship between job resources and work

engagement was. Alternatively, as the levels of job demands increased, the weaker the relationship between job resources and work engagement became. Although the hypothesised relationship **was found to be statistically significant**, the researcher expected to find this moderation to be positive, as was stated in section 2.11.4. Figure 4.6 provides a visual representation of this negative moderating effect of job demands on the relationship between job resources and work engagement.

- Hypothesis 6: Job demands have a significant moderating effect on the relationship between personal resources and work engagement.** The t-statistic of 2.39 exceeded the critical cut-off t-value ($t > |1.96|$) and the null hypothesis was consequently rejected in favour of the alternative hypothesis ($H_{a6}: \gamma_{32} > 0$). The positive sign of the estimate provided evidence that job demands positively moderated the relationship between personal resources and work engagement. Thus, the higher the levels of job demands became, the stronger the relationship between personal resources and work engagement proved to be. The hypothesised relationship **was found to be statistically significant** and coincided with the expectation that other researchers have had on this effect.

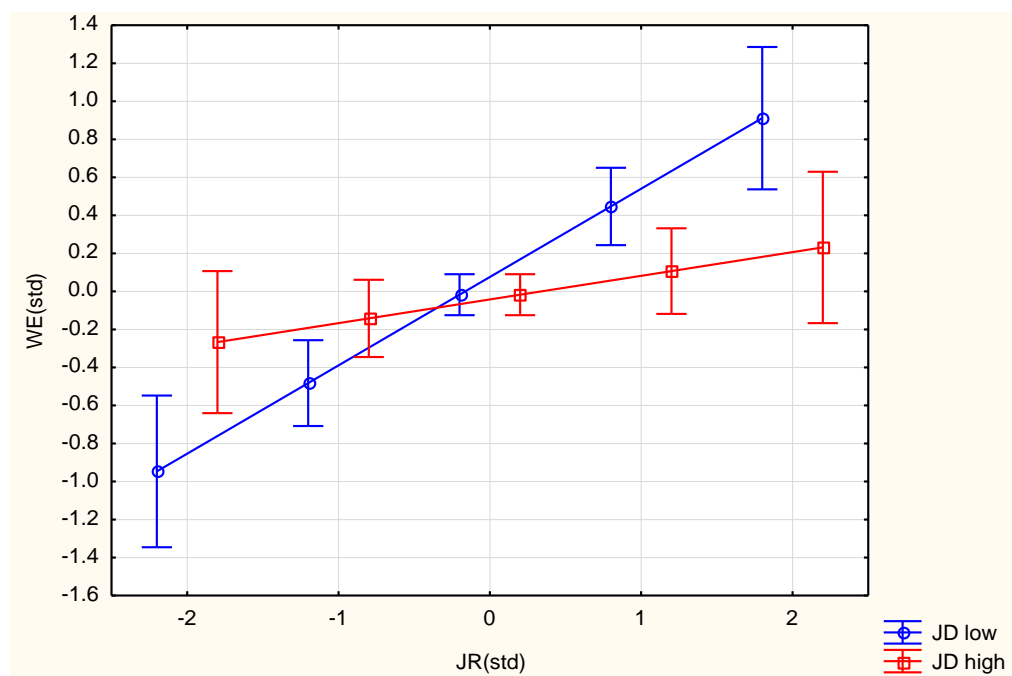


Figure 4.6. Graph depicting the negative moderating effect of Job Demands (hypothesis 5).

- **Hypothesis 13: Work engagement has a significant moderating effect on the relationship between job performance and job crafting.** The t-statistic of .82 did not exceed the critical cut-off t-value ($t > |1.96|$) and the null hypothesis was therefore not rejected ($H_{013}: \gamma_{53} = 0$). The hypothesised relationship was found to be **not significant**. Once again, the subjectivity of the performance rating score could have had an influence.

4.3.2.3 Additional analysis of the moderating effects

The researcher decided to run two additional analyses in SPSS to evaluate the accuracy of the SEM results. The first analysis first estimated the explained variance (R^2) in the dependent variable (DV) by only making use of the independent variable (IV) as a predictor (Tabachnick & Fidell, 2013). Thereafter, the moderator variable was added to the regression as an additional variable to determine whether there was a significant increase in the explained variance of the DV. As can be seen from Table 4.4, the only significant increase in explained variance (R^2 change) was related to hypothesis 5 ($p = .014$). The negative interaction coefficient (-.12) confirmed that the moderation effect was negative. Hypotheses 6 and 13 were consequently not supported by this analysis.

Table 4.4

Regression Analysis of the Moderator Variables

IV	Moderator	DV	Interaction coefficient	R^2 (IV only)	R^2 with interaction	R^2 change	P-value
JR	JD	WE	-.12	.086	.10	.014	.028**
PR	JD	WE	.08	.246	.25	.04	.0123
PERF	WE	JC	.05	.004	.006	.002	.36

IV = Independent Variable; DV = Dependent Variable; R^2 = explained variance; JR = Job Resources; PR = Personal Resources; PERF = Job Performance; JD = Job Demands; WE = Work Engagement; JC = Job Crafting

** $p < .05$ (statistically significant at the 95 percent confidence level)

Multiple regression was the second analysis that was executed. An interaction variable was computed by multiplying the IV's score with the moderator variable's score. The interaction variable, together with the other predictors, was all simultaneously entered into the regression equation in order to predict the DV. Summarised in Table 4.5 are the p-values of the interaction variables, which indicate whether the interaction variable's contribution to the explained variance of the DV was significant.

Table 4.5*Multiple Regression Analysis of the Moderator Variables*

IV	Interaction Variable	DV	P-value
JR	JD_JR	WE	.01**
PR	JD_PR	WE	.01**
PERF	WE_PERF	JC	.47

IV = Independent Variable; DV = Dependent Variable; JR = Job Resources; PR = Personal Resources; PERF = Job Performance; JD = Job Demands; WE = Work Engagement; JC = Job Crafting

** p < .05 (statistically significant at the 95 percent confidence level)

Evidently, support for hypotheses 5 (job demands moderate the relationship between job resources and work engagement) and 6 (job demands moderate the relationship between personal resources and work engagement) were found based on the significant ($p = .01$) contribution of the interaction variables in explaining variance in the DV.

Table 4.6*Decisions about Hypotheses Based on Analyses*

Hypothesis	SEM	Regression	Multiple regression	Decision based on all analyses
Hypothesis 1	✓	NA	NA	Significant
Hypothesis 2	✓	NA	NA	Significant
Hypothesis 3	x	NA	NA	Not significant
Hypothesis 4	✓	NA	NA	Significant
Hypothesis 5	✓	✓	✓	Significant, but was negative instead of positive
Hypothesis 6	✓	x	✓	Significant
Hypothesis 7	x	NA	NA	Not significant
Hypothesis 8	x	NA	NA	Not significant
Hypothesis 9	x	NA	NA	Not significant
Hypothesis 10	x	NA	NA	Not significant
Hypothesis 11	✓	NA	NA	Significant
Hypothesis 12	✓	NA	NA	Significant
Hypothesis 13	x	x	x	Not significant

✓ = significant; x = not significant; NA = Not Applicable (was not tested)

Table 4.6 provides an overview of the hypotheses, the types of analyses that were run and the final decisions regarding the hypotheses. Figure 4.7 provides a summary of the standardised beta path coefficients of the model, and also indicates which paths were significant (**).

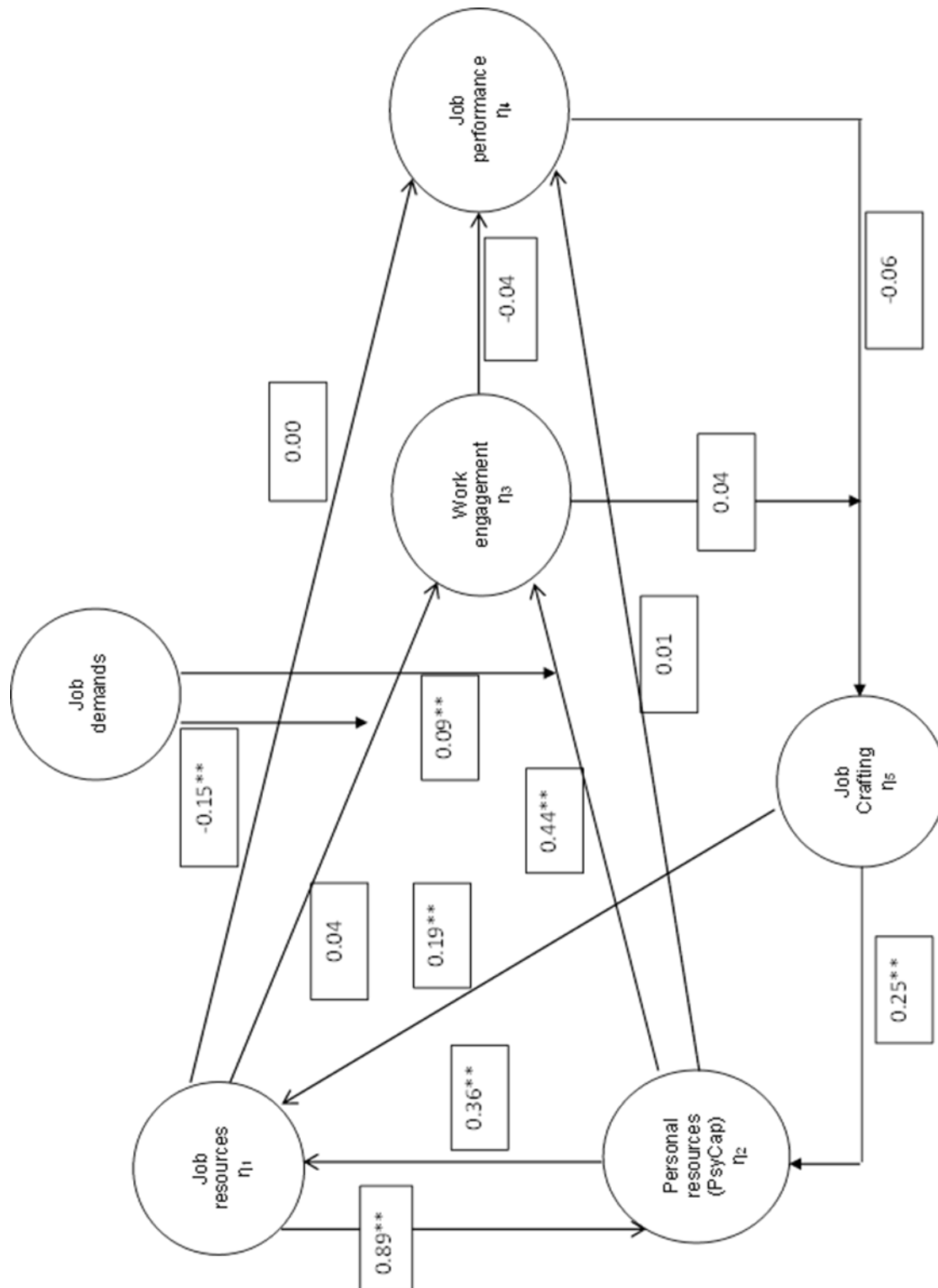


Figure 4.7. Structural model with standardised path coefficients

4.4 INTERPRETING FINAL SCORES

The final scores of the respective measurement scales were investigated in order to draw inferences about the sample's standing on these latent variables. This information is usually what the organisation, from which the sample was drawn, finds most valuable in terms of evidence that can be used to justify practical implications.

4.4.1 Interpreting the Job Resources score

The Job Resources scale, based on items from the Work Design Questionnaire (Morgeson & Humphrey, 2006) and the adapted Trust scale of Mayer and Davis (Schoorman & Ballinger, 2006), was used to determine the extent to which a sample of private sector nurses in the Western Cape felt that they possessed job resources. The literature does not provide any specific instructions regarding the interpretation of scores obtained. Therefore, mean scores were categorised as low (1.00 to 2.33), medium (2.34 to 3.66) and high (3.67 to 5.00) in this study.

The mean score obtained by the nurses for the total scale was 3.79 (SD = 0.52). This score can be interpreted as a marginally high score and indicates that many nurses felt that they have job resources at their disposal.

The following mean scores were obtained for each of the subscales included in the Job Resources scale:

- **Autonomy:** The mean score obtained for the autonomy subscale was 3.48 (SD = 0.86), which indicates a medium score for job autonomy. This subscale measured three types of autonomy, namely work scheduling, decision-making, and work methods. The mean score obtained for *work scheduling* was 3.50 (SD = 1.03) and can be categorised as a medium score. The mean score obtained for *decision-making* was 3.51 (SD = 0.97) and can be categorised as a medium score. Finally, the mean score obtained for *work methods* was 3.43 (SD = 0.98), which can also be categorised as a medium score. Overall, many of the nurses felt that they had some form of autonomy in their job.
- **Feedback from the job:** The mean score obtained for this subscale was 3.98 (SD = 0.83), which indicates a high level of feedback. Many nurses felt that the actual job provided them with feedback on how they were performing.

- **Task significance:** The mean score obtained for the task significance subscale was 4.28 (SD = 0.72), which indicates a high level of task significance. During the data collection period, a high number of nurses stated the belief that their job had a significant impact on the lives of others. This subscale obtained the highest mean score of the four Job Resources subscales.
- **Trust in a manager:** The mean score obtained for this subscale was 3.41 (SD = 0.62), which indicates a medium level of trust in a manager. Many nurses felt during the period of data collection that unit managers did not keep the interest of the nurses in mind. This subscale had the lowest score of the four Job Resources subscales.

Overall, the nurses reported a marginally high score for the Job Resources scale and felt that task significance was the most important resource, while trust in a manager was found to be the resource with the lowest score.

4.4.2 Interpreting the Job Demands score

The Job Demands scale, based on a subscale of the Job Demands-Resources Scale (JD-RS) (Rothman et al., 2006), measured work overload (pace and amount of work, mental load, and emotional load). The Job Demands scale comprised of eight items, which served as a composite measurement of job demands. Responses were scored on a four-point Likert scale (1 = never; 4 = always).

The literature does not provide any specific instructions regarding the interpretation of scores obtained. Therefore, mean scores were categorised as low (1.00 to 2.00), medium (2.00 to 3.00) and high (3.00 to 4.00) in this study.

The mean score obtained by the nurses for the total scale was 3.13 (SD = 0.46). This score is categorised as high and indicates that almost all of the nurses experienced high levels of job demands.

4.4.3 Interpreting the Personal Resources score

The Personal Resources construct was measured by means of the 24-item Psychological Capital Questionnaire (Luthans et al., 2007a). It was used to determine the extent to which a sample of private sector nurses felt that they possessed personal resources. The PsyCap-24 questionnaire comprised of four subscales, which served as a composite measurement indicator of personal resources. Responses were scored on a six-point Likert scale (1 = strongly disagree; 6 = strongly agree). Three items were based on reversed scoring.

The literature does not provide any specific instructions regarding the interpretation of scores obtained. Therefore, mean scores were categorised as low (1.00 to 2.66), medium (2.67 to 4.33) and high (4.34 to 6.00) in this study.

The mean score obtained by the nurses for the total scale was 4.51 (SD = 0.50). This score is categorised as high and indicates that a reasonable amount of the nurses experienced high levels of personal resources.

The following mean scores were obtained for each of the subscales included in the PsyCap-24:

- **Self-efficacy:** The mean score obtained for this subscale was 4.53 (SD = 0.79), which indicates a high level of self-efficacy. Many nurses felt that they had confidence to take on and put in the necessary effort to succeed at complex or perplexing tasks.
- **Hope:** The mean score obtained for this subscale was 4.65 (SD = 0.70), which reflects high levels of hope. The majority of nurses persevered toward goals and, when required, redirected paths to goals in order to succeed.
- **Resilience:** The mean score obtained for this subscale was 4.50 (SD = 0.63), which indicates high levels of resilience. When many of the nurses were beset by problems and adversity, they sustained energy and bounced back to attain success.
- **Optimism:** The mean score obtained for the Optimism subscale was 4.34 (SD = 0.59), which indicates medium to high levels of optimism. A reasonable amount of nurses made a positive attribution about succeeding then and in the future.

Overall, the nurses indicated that they possessed high levels of personal resources and felt that Hope was the most important resource, while Optimism was found to be the resource with the lowest score.

4.4.4 Interpreting the Work Engagement score

The UWES-17 (Schaufeli, Bakker & Salanova, 2006) was used to determine the degree to which a sample of private sector nurses engaged with their work. The UWES-17 comprises three subscales, which served as a composite measurement indicator of work engagement. Responses were scored on a seven-point Likert scale (0 = never; 6 = always). None of the items was reverse scored.

Schaufeli and Bakker (2003) advise that the true meaning of scores obtained for any version of the UWES can be interpreted using the scoring template presented in Table 4.7.

Table 4.7*Scoring Template for UWES Mean Scores*

Mean score	Mean
<i>1 – feels engaged once a year or less</i>	0.00 to 0.99
<i>2 – feels engaged at least once a year</i>	1.00 to 1.99
<i>3 – feels engaged at least once a month</i>	2.00 to 2.99
<i>4 – feels engaged at least a couple of times a month</i>	3.00 to 3.99
<i>5 – feels engaged at least once a week</i>	4.00 to 4.99
<i>6 – feels engaged a couple of times per week or daily</i>	5.00 to 6.00

The total mean score obtained for nurse engagement was 4.57 (SD = 0.74), which indicates a level 5 work engagement among the sample of nurses. This implies that the nurses experienced feelings of work engagement at least once a week.

The following mean scores were obtained for each of the subscales included in the UWES-17:

- **Vigour:** The mean score obtained for the Vigour subscale was 4.26 (SD = 0.89), which indicated a level 5 employee engagement. This implies that, at least once a week, nurses were willing to devote time and effort to their work. During that period nurses were characterised by high levels of energy and mental resilience despite experiencing stress or facing challenging tasks.
- **Dedication:** The mean score obtained for the Dedication subscale was 5.25 (SD = 0.81), which indicated a level 6 work engagement. This implies that nurses experienced a strong sense of identification with and involvement in their work at least once a week. During that period, nurses were inspired by the significance and meaning associated with their work.
- **Absorption:** The mean score obtained for the Absorption subscale was 4.19 (SD = 1.03), indicating a level 5 work engagement. This implies that, at least once a week, nurses felt completely captivated by their work, having difficulty disengaging from their work after completing tasks.

The Encyclopaedia of Nurse Research (Fitzpatrick & Kazer, 2012) reports the UWES-17 scores of several studies. The minimum to maximum mean scores for the subscales ranged from 4.34 to 4.96, whilst the total mean score ranged from 4.29 to 4.6. In comparison, it was

concluded that the nurses' levels of work engagement in this study coincided with previous studies. Moreover, the work engagement levels of the nurses in this study were considered **above average** compared to the total norm group (N = 2313) of the UWES-17 (total mean = 3.82; Vigour = 3.99; Dedication = 3.81; Absorption = 3.56) captured in the UWES manual (Schaufeli & Bakker, 2003).

4.4.5 Interpreting the Job Crafting score

The Job Crafting Scale (JCS) (Tims et al., 2012) was used to determine the degree to which the sample of nurses was engaged in job crafting behaviour. The JCS comprises four subscales, which form a composite measurement indicator of job crafting behaviour. Responses were scored on a five-point Likert scale (1 = never; 5 = often). None of the items was reverse scored.

The literature does not provide any specific instructions regarding the interpretation of scores obtained by the JCS. Therefore, mean scores were categorised as low (1.00 to 2.33), medium (2.34 to 3.66) and high (3.67 to 5.00) in this study.

The total mean score obtained for job crafting was 3.82 (SD = 0.48). The score was just above the cut-off for the inclusion in the 'high' category. This indicates that the nurses engaged in job crafting behaviour, but that improvement could be made.

The following mean scores were obtained for each of the subscales included in the JCS:

- **Increasing structural job resources:** The mean score obtained for this subscale was 4.58 (SD = 0.66), which indicates a high level of attempts to increase structural job resources. This implies that nurses took resourceful initiative to increase variety, opportunity for development, and autonomy.
- **Decreasing hindering job demands:** The mean score obtained for this subscale was 3.50 (SD = 0.80), which indicates a medium level of attempts to decrease hindering job demands. This implies that some nurses took initiative to proactively lower job demands, such as time and mental pressures, when they felt overwhelmed.
- **Increasing social job resources:** The mean score obtained for the increasing social job resources subscale was 3.70 (SD = 0.79), which indicates a high level of effort to increase social job resources. This implies that many nurses took initiative to increase social support, supervisory coaching and feedback.
- **Increasing challenging job demands:** The mean score obtained for this subscale was 3.64 (SD = 0.76), which indicates a medium level of effort to increase challenging job

demands. This implies that some nurses increased job demands that prevent boredom and stimulate personal growth.

Overall, the level of job crafting behaviour was satisfactory, although the hospitals could implement measures to foster this behaviour even more.

4.5 INTERPRETING THE PROPOSED HYPOTHESES

Statistical inference is the process of drawing conclusions from data. Causality between latent variables can only be inferred from the hypothesised models (Terre Blanche, Durrheim & Painter, 2006). Statistical evidence does not prove causal effects, but contribute to the body of knowledge on what is known about the relationships between certain latent variables. In light of the aforementioned, the presented statistical findings were interpreted in terms of the hypotheses listed in section 3.2.2.

Hypothesis 1: Job resources have a significant positive effect on personal resources.

The hypothesised positive relationship between job resources and personal resources **was found to be statistically significant** (SEM path coefficient = .89). This coincided with previous research that studied this relationship (e.g. Bakker & Demerouti, 2007; Xanthopoulou et al., 2007). Consequently, nurses employed by a privatised hospital group in the Western Cape who have access to job resources, are more likely to experience high levels of personal resources, such as hope and self-efficacy. Job resources such as autonomy, feedback, task significance and trust create a resourceful work environment which probably stimulates feelings of hope, optimism, self-efficacy and resilience.

Hypothesis 2: Personal resources have a significant positive effect on job resources.

The hypothesised positive relationship between personal resources and job resources **was found to be statistically significant** (SEM path coefficient = .36). This finding echoed previous research endeavours (e.g. Bakker, 2011; Xanthopoulou et al., 2009a). Nurses who possess personal resources are therefore likely to mobilise the job resources within their work environment. For example, nurses who experience high levels of self-efficacy would more likely have the confidence to act autonomously in their jobs, than those nurses with low self-efficacy.

Hypothesis 3: Job resources have a significant positive effect on work engagement.

The hypothesised positive relationship between job resources and work engagement **was not found to be statistically significant** (SEM path coefficient = .04). Other studies have found

evidence in support of this relationship (e.g. Bakker, Hakanen, Demerouti & Xanthopoulou 2007; Xanthopoulou et al., 2009a). This suggests that although nurses may possess various job resources, the resources did not necessarily assist them in engaging in their jobs. The nurses in this study therefore experienced work engagement, perhaps without relying too much on the job resources offered by the work environment. This is, however, in contradiction with one of the basic assumptions of the Job Demands-Resources model (JD-R model). One other possible explanation for the non-significant result of this hypothesis could be due to the fact that the Trust sub-scale was troublesome, as discussed earlier.

Hypothesis 4: Personal resources have a significant positive effect on work engagement.

The hypothesised positive relationship between personal resources and work engagement **was found to be statistically significant** (SEM path coefficient = .44). This finding coincided with previous research results on this relationship (e.g. Herbert, 2011). Personal resources therefore seems to enable nurses to feel engaged in their work.

Hypothesis 5: Job demands have a significant moderating effect on the relationship between job resources and work engagement.

The hypothesised relationship **was found to be statistically significant** (SEM path coefficient = -.15). However, it was anticipated that this moderation effect would be positive. Instead, the significant negative relationship indicates that as nurses' job demands increased, the relationship between their job resources and work engagement weakened. Stated otherwise, as job demands decreased, the relationship between their job resources and work engagement became stronger. This finding is in contradiction with the finding of earlier studies that examined this moderation effect (e.g. Bakker et al., 2007; Bakker & Demerouti, 2011). One reason for this finding could be from a realistic work viewpoint (in other words, not an academic viewpoint) – when nurses experienced increased levels of job demands, their relationship between job resources and work engagement weakened. Their job resources were therefore not sufficient enough to assist them to experience high levels of work engaged in the face of high demands, as the theory states.

Hypothesis 6: Job demands have a significant moderating effect on the relationship between personal resources and work engagement.

The hypothesised relationship **was found to be statistically significant** (SEM path coefficient = .09). This corroborated earlier research endeavours that studied this relationship (Bakker & Demerouti, 2008). The nurses in the privatised hospital group therefore

experienced that their personal resources gained saliency in predicting work engagement when job demands became high. Thus, when job demands such as workload increased, the nurses seemed to rely more on their personal resources, such as hope and optimism, to keep them engaged in their work.

Hypothesis 7: Work engagement has a significant positive effect on job performance.

The hypothesised positive relationship between work engagement and job performance **was not found to be statistically significant** (SEM path coefficient = $-.04$). Yet, many other studies have found evidence in support of this relationship (e.g. Bakker, Demerouti, & Verbeke, 2004; Demerouti & Cropanzano, 2010). The possibility exists that other unknown variables moderate or mediate the relationship between work engagement and job performance, and therefore no direct relationship was found.

Hypothesis 8: Job resources have a significant positive effect on job performance.

The hypothesised positive relationship between job resources and job performance **was not found to be statistically significant** (SEM path coefficient = $.00$). The path coefficient suggests that no relationship was found between the constructs. No previous studies have investigated the direct relationship between job resources and performance. One possibility might be that the nurses' job resources rather worked through the mediating role of work engagement to influence their performance.

Hypothesis 9: Personal resources have a significant positive effect on job performance.

The hypothesised positive relationship between personal resources and job performance **was not found to be statistically significant** (SEM path coefficient = $.01$). Similarly, this path coefficient also indicates that almost no relationship was present between the constructs. Once again, it might be the case that the nurses' personal resources worked through work engagement or other unknown latent variables to influence their job performance.

Hypothesis 10: Job performance has a significant positive effect on job crafting.

The hypothesised positive relationship between job performance and job crafting **was not found to be statistically significant** (SEM path coefficient = $-.06$). Although this path is included in the JD-R model, very little research has been executed in this regard. Job performance did not seem to have an influence on the crafting behaviour of the nurses.

Hypothesis 11: Job crafting has a significant positive effect on job resources.

The hypothesised positive relationship **was found to be statistically significant** (SEM path coefficient = .19). Nurses that engaged in job crafting behaviour also seemed to experience the work environment as more resourceful in terms of job resources. It is possible that these nurses crafted their own job resources through three types of crafting behaviours (i.e. relational, cognitive and meaning crafting). This finding is similar to the findings of Tims, Bakker and Derks (2013).

Hypothesis 12: Job crafting has a significant positive effect on personal resources.

The hypothesised positive relationship between job crafting and personal resources **was found to be statistically significant** (SEM path coefficient = .25). Similarly, nurses that engaged in crafting behaviour also seemed to experience higher levels of personal resources. It is highly possible that nurses who crafted within their jobs also engaged in meaning crafting which probably resulted in increased personal resources, such as hope, optimism and resilience.

Hypothesis 13: Work engagement has a significant moderating effect on the relationship between job performance and job crafting.

The hypothesised relationship **was not found to be statistically significant** (SEM path coefficient = .04). Despite the portrayal of this moderation effect in the JD-R model, the nurses did not seem to experience higher levels of work engagement that resulted in a stronger relationship between job performance and job crafting. Very little research is available on the hypothesised relationship.

4.6 CHAPTER SUMMARY

The purpose of this chapter was to present and discuss the statistical results of the various analyses performed in this research study. Firstly, the measurement model was validated by conducting item analysis and CFA. Thereafter, the structural model was tested and path coefficients were investigated. Additionally, regression and multiple regression analyses were performed to substitute the SEM results with regards to the moderation effects (hypotheses 5, 6 and 13). Lastly, the final scores and hypothesised relationships were interpreted. It is important to note that no individual items were removed after the item analysis was conducted, and no subscales or items were removed subsequent to CFA. This was done with the purpose of interpreting the results exactly as they were gathered by the research questionnaire. The researcher did not want to influence the results, i.e. by deleting items or improving measurement model fit. Consequently, it is noteworthy that all the hypotheses

related to the Job Performance construct were not significant. It is suspected that this is due to the fact that the job performance scores were a poor measure of the Job Performance construct and that other studies could find significant results with a better job performance measurement. In this study, five out of the six non-significant hypotheses were related to the Job Performance construct.

The next chapter will outline the limitations of this study, as well as offer recommendations for future research. Furthermore, the managerial implications of the research findings and recommended practical interventions will be discussed.

CHAPTER 5

IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS

5.1 INTRODUCTION

Chapter 1 contextualised the study and gave an overview of the research initiating question and the research objectives. Chapter 2 provided an in-depth literature review on the relevant variables of the study, together with hypotheses that were derived from the literature. Chapter 3 explained the methodology, sample, and statistical analyses that were used in the study. Chapter 4 discussed the results, participant scores and outcomes of the hypotheses.

This chapter will outline managerial implications to assist South African industrial psychologists, line managers and the hospital group in addressing problems related to the research findings discussed in Chapter 4. The results will be drawn back to the basic JD-R theory and will evaluate to what degree this study's findings agree with the theory. Furthermore, limitations of the study will be put forward together with recommendations for future research endeavours.

5.2 IMPLICATIONS

Work engagement and job performance are individual and organisational outcomes of the interaction between the variables in the JD-R model, namely, job resources, job demands, personal resources and job crafting (Bakker, 2011). It would therefore be advantageous for organisations to focus managerial efforts and interventions on the latter variables with the aim to increase work engagement and job performance.

The proposed implications are firstly structured as general implications that organisations, managers and industrial psychologists can implement to address problems associated with the above-mentioned variables. In the second instance, the implications address specific interventions geared towards the problems that emerged from the statistical results of the hospital group sample.

Bakker and Demerouti (2014) provide insight into several JD-R interventions, namely a) job redesign; b) job crafting; c) training; and d) strengths-based interventions. Figure 5.1 specifies the intervention target and level of each of the interventions.

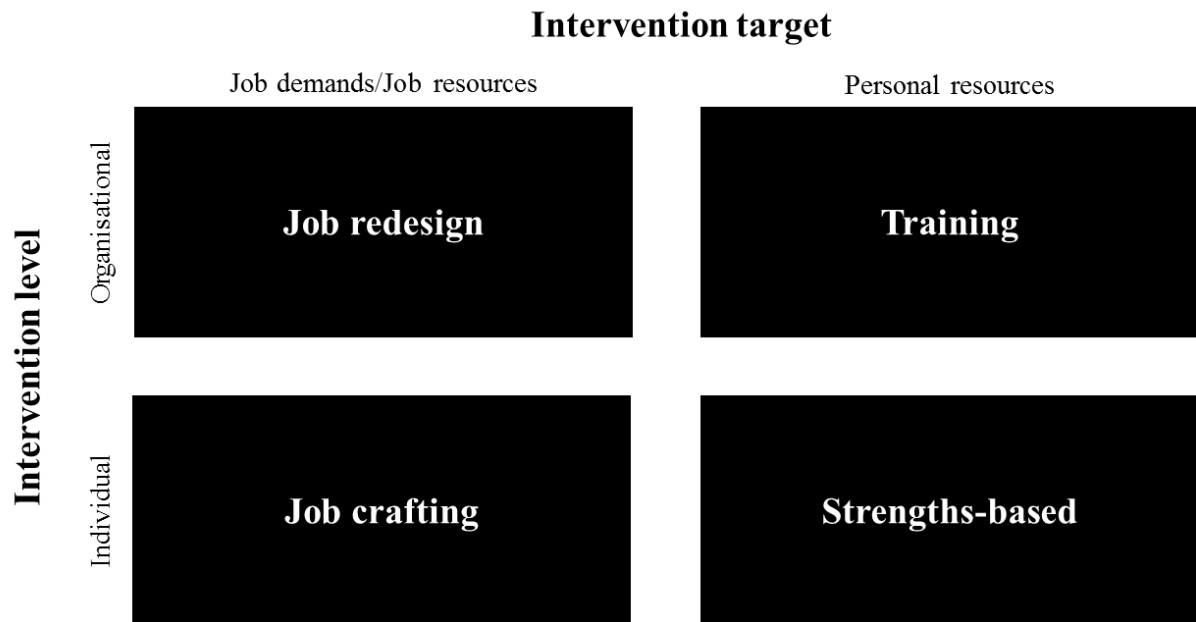


Figure 5.1. JD-R interventions (Bakker & Demerouti, 2014)

5.2.1 Job redesign

Job-redesign is a structural intervention at the organisational level that addresses the work environment by suggesting changes to job demands and/or job resources. JD-R studies have consistently found that challenging, resourceful work environments facilitated employee engagement and consequently resulted in high job performance (Bakker, 2011; Bakker & Demerouti, 2014). This implies that organisations should strive to offer employees challenging job demands and sufficient job resources.

Job redesign is a top-down process where organisations or managers change elements of the job tasks, responsibilities, roles, conditions etc. with the aim of optimising the demands-resources balance. Examples of job redesign would be to increase individual or team autonomy (job resource); to introduce interdependent functional teams (job resource); and to assign additional job responsibilities (challenging job demand). In each case, the structure and/or content of the job is redesigned. Managers can also conduct an organisational survey to determine which job resources and demands employees would like to see addressed with the aim to improve engagement and job performance outcomes (Bakker & Demerouti, 2014).

In the case of the hospital group, the results in Chapter 4 indicated that autonomy and trust in a manager as job resources were perceived at an average level. The unit supervisors and hospital managers should therefore address nurse autonomy and trust in nurse supervisors. Weston (2010) provides strategies for enhancing nurse autonomy. Firstly, nurse supervisors

should *clarify expectations* to ensure that nurses have the freedom to act autonomously. Supervisors should communicate clearly and organise work in such a way that nurses know what the expected behaviours are. Due to the independent and interdependent nature of nursing practice, nurses need to know when they may act on their own and when to consult other parties, e.g. when prescribing over-the-counter medication. The second interventionist measure would be to *enhance nurse competence*. Ensuring that nurses have the adequate knowledge, training and expertise makes nurses feel competent in their work and autonomous decision-making. Unit supervisors should therefore create an environment that supports both formal and informal continuous learning and educational opportunities to enhance autonomous clinical practice. The third intervention is to *enhance competence in decision-making*. Supervisors should teach nurses about decision-making processes so that nurses can feel competent in the decisions they make. It is also suggested that supervisors should coach and support nurses through early decisions.

Weston (2010) also offers strategies for increasing the trust that nurses have in unit supervisors. Firstly, unit supervisors should *create learning environments* where nurses should feel safe to ask questions and learn from their supervisors. Hospital managers could consider introducing a formalised structure for creating learning environments, e.g. designated supervisory mentors. This could possibly strengthen the trust relationship between nurses and their unit supervisors, since they would work together on a more regular basis. Nurses would also feel more confident to approach unit supervisors with problems, because a trusting relationship is likely to develop as an outcome of the mentor programme. Secondly, unit supervisors can *create a trusting environment* by encouraging dialogue during staff meetings. For example, nurses can share complicated patient scenarios that have challenged them. Supervisors can respond by exemplifying excellence in practice and provide feedback on how to further enhance patient care. Thirdly, supervisors should *introduce participative decision-making*. A formal participative structure could be introduced where nurses are encouraged to participate in committees with representatives. A certain degree of input should be sought and expected from all nurses in this regard. In addition, representatives should have responsibility and accountability for the issues and solutions discussed within the committees. Participative decision-making could consequently increase the level of trust between nurses and supervisors, and also promote general trust in decision-making processes.

5.2.2 Job crafting interventions

Bakker and Demerouti (2014) explain that job crafting interventions, in contrast to traditional job redesign, is situated on the individual level and is instigated by the employees themselves. Employees choose to proactively change their job resources, job demands, and work environment.

Organisations can promote job crafting behaviours that are beneficial to both the organisation and the employees by educating employees on how they can job craft. Firstly, managers can organise workshops where explanations and exercises are offered to demonstrate how job crafting works. Employees would receive the opportunity to practice these behaviours in the workshops. Secondly, managers can help employees to develop their own personalised crafting plan (PCP). The PCP can be used to set job crafting goals and managers can conceptualise it as a coaching process where they can track employees' progress and offer feedback and suggestions. Goal-setting and practicing will take place over a period of several weeks. The crafting goals would specifically focus on a) increasing job resources; b) increasing challenging demands; c) and decreasing troublesome job demands. Tims, Bakker and Derks (2013) suggest that employees can increase their structural job resources by focusing on the elements of the Job Characteristics Model, namely, task significance, task identity, skill variety, autonomy, and feedback. Additionally, social job resources can be increased by seeking social support from colleagues. Finally, managers could organise reflective meetings where employees can discuss successes, challenges, and problems related to their PCPs. This type of job crafting process will not only inform the employees, but also the managers on how they can apply job crafting behaviours within their managerial roles. Bakker and Demerouti (2014) propose that job crafting interventions can also take the form of internet-based sessions over a period of time, e.g. six weeks.

Steering away from crafting interventions, several managerial implications can be implemented to increase job crafting behaviour. Firstly, it is recommended that managers should opt to select individuals who possess personal characteristics that have been found to promote job crafting behaviour, such as self-efficacy, goal-directedness, and an action orientation (Tims & Bakker, 2010). Managers should therefore expand selection criteria to test and include these personal characteristics when hiring new employees. Secondly, managers could also be encouraged to model these types of behaviours and thereby act as role models for employees. The postulation that managerial actions and communications can build the job crafting behaviours of employees is known as the Pygmalion effect (Avey, 2014). Thirdly,

organisations could also invest in training and development that would address the development of these behaviours, for example self-efficacy training. Fourthly, managers should support job crafting behaviour and attempt to minimise factors that are restrictive to job crafting within the work environment (Tims et al., 2013). Lastly, employees should feel comfortable to implement job crafting actions. The organisational climate should therefore be non-threatening and supportive of proactive action. Tims et al. (2013) underscore the importance of supportive leadership in this regard.

The results discussed in Chapter 4 indicated that the nurses showed high levels of initiative in increasing their structural and social job resources. The nurses did however indicate that they participated moderately in increasing their challenging job demands, and decreasing their hindering job demands. Unit supervisors can therefore help nurses to specifically focus on the latter as crafting goals when drawing up PCPs. Tims et al. (2012) provide the following suggestions for *increasing challenging job demands*: a) become involved in new projects and developments in the work environment, for example decision-making committees (as discussed previously); b) take on extra tasks in times that work is not chaotic, for example organise activities to entertain paediatric patients; and c) create challenges by spending more time on job activities that are interesting, but rarely given attention to. Similarly, advice is provided on *decreasing hindering job demands*: a) find ways to make work less intense, both emotionally and mentally, for example by taking frequent breaks; and b) minimise contact with people whose problems are draining and expectations are unrealistic, e.g. a taxing colleague. In general, supervisors should recognise and reward exceptional job crafting behaviour to stimulate crafting in the workplace. Supervisors should also take reasonable action to monitor nurses' ability to deal with demands, especially during job performance appraisal discussions, to ensure that work remains meaningful and challenging instead of becoming overwhelming.

5.2.3 Training

Training interventions, as depicted in Figure 5.1, are aimed at the organisational level with the purpose to develop personal resources. Training and development is one of the cornerstones of the Human Resource Management function. Within the South African context, organisations that meet specific requirements have to be able to prove that they invest sufficiently in the training and development of employees. The aim of training is to develop employees' skill, knowledge and problem-solving abilities. Bakker and Demerouti (2014) put forward that training could also be targeted at developing employees' personal

resources. Demerouti et al. (as cited in Bakker & Demerouti, 2014) found that training interventions aimed at positive change in personal resources resulted both in increased self-reported personal resources, and increased external ratings of positive change.

Luthans, Avey, Avolio, Norman and Combs (2006) developed micro-interventions targeted at developing PsyCap elements, namely, hope, optimism, self-efficacy, and resilience. They found that the interventions not only improved the employees' PsyCap, but also had a positive impact on financial metrics, and had a high return on investment. Organisations can similarly invest in PsyCap training at an organisational level. The micro-interventions will subsequently be discussed in short.

- **Hope:** The hope construct consists of agency, goals and pathway elements. The intervention is usually one to three hours long and begins by asking participants to develop *personally valued goals*. The facilitator emphasises the importance of setting a) measureable goals and b) sub-goals in order to track small 'wins' on the way to achieving bigger goals. When this phase is complete, participants are asked to develop as many pathways to reaching the goals as possible. This process is called *pathway generation*. After the participants have individually brainstormed ideas, they are divided into small groups. Within the groups, participants help each other to generate additional paths to goals and also to identify possible obstacles related to each suggested path. The final step is to *inventory pathways* based on the required resources and possible obstacles, and to discard unrealistic pathways. Ultimately, participants are taught to take ownership of personally valued goals and to develop contingency plans, even in the face of obstacles.
- **Optimism:** Optimism interventions also largely focus on elements addressed in hope, self-efficacy, and resilience training. Facilitators can additionally prepare a 'worst-case scenario' exercise where participants are asked to identify the worst possible outcome of a situation. Participants are instructed to develop plans to take proactive actions in the case that the worst-case scenario unfolds. The facilitator focuses on counteracting pessimism and supports the development of realistic, yet optimistic, expectations about the future and reinforces positive self-talk.
- **Self-efficacy:** Efficacy training, also called confidence training, is based on the work of Bandura, and is the most accepted and extensive intervention of the four. This intervention draws from the taxonomy of the sources of efficacy, namely: modelling or vicarious learning, task mastery, social persuasion and positive feedback, and

psychological and/or physiological arousal. This intervention builds on the hope intervention and the goals that were set. Exercises focus on modelling success, group role playing, eliciting positive emotions, building participant confidence to generate and implement goals, etc. The researcher would suggest that managers/unit supervisors should also be involved in such sessions to learn how to facilitate the development of self-efficacy of their subordinates.

- **Resilience:** This intervention focuses on framing personal setbacks. Participants are asked to identify recent personal setbacks in their work domains (e.g. downsizing, or nurse-supervisor conflict) and to reflect over their immediate reactions. The facilitator leads them through a process of ideal resiliency, where participants detangle what factors were in their control, out of their control, and possible actions that could have been taken. The aim of the intervention is to reinforce learned cognitive processes that focus on framing setback and developing plans to bounce back from obstacles. Participants develop strategies to enhance their personal assets and to develop perceptions of influence through cognitive, emotional, and behavioural exercises.

Moving away from PsyCap training, Avey (2014) suggest that managers should select and hire individuals that have high levels of PsyCap based on individual differences. He explains that although PsyCap is not a fixed trait, it is not as inclined to fluctuations as emotions and can therefore be included in trait-based selection criteria. Moreover, the study by Avey (2014) investigated the antecedents of PsyCap and found that PsyCap could not be related to specific demographics. Managers should therefore refrain from selecting on the basis of age and gender, since these demographics have no relation to PsyCap. This finding can specifically be applied to the nursing profession since it is stigmatised as being a predominantly female profession (Evans & Frank, 2003).

The research findings, as discussed in Chapter 4, showed that nurses experienced high levels of hope, self-efficacy and resilience, and a medium level of optimism. Since optimism training relies on the basis of the other interventions, and it is therefore suggested that the hospital group invests in a targeted optimism training session that combines elements of the other interventions. Alternatively, Luthans, Avey and Patera (2008) recommend web-based training for the development of PsyCap. They promote the ease of implementation, delivery, reduced cost, and accessibility of web-based training interventions that take the format of two 45 minute online sessions.

5.2.4 Strength-based interventions

According to Bakker and Demerouti (2014), strength-based interventions are situated on the individual level and are also aimed at developing the personal resources of employees. Park et al. (as cited in Bakker & Demerouti, 2014, p. 21) define individual strengths as “positive traits reflected in thoughts, feelings, and behaviours”. In comparison to personal resources training on an organisational level, strength-based interventions would take a more personalised, coaching format that would usually either take place between a manager and an employee, or a coach and an employee. This one-on-one approach takes an individual on a development journey where he/she starts out by identifying individual strengths. The individual is guided over a certain period (e.g. six months) to investigate different ways in which his/her strengths can be developed and applied within the work environment. This type of intervention tries to elicit authentic feelings and behaviours and lead the individual on a path of personal development and engagement with their work.

Although this type of intervention would be beneficial to any employee, it could be costly and time intensive. This type of JD-R intervention would therefore not be recommended to the hospital group based on the amount of nurses that they employ. Strengths-based interventions are seen as a form of leadership development (Avey, 2014) and could therefore be valuable at a managerial and/or executive level depending on whether a need exists for such interventions.

5.3 DISCUSSION

Overall, the objectives of this study were to test the comprehensive structural JD-R model of the proposed relationships between the constructs; to propose additional paths in the JD-R model, and to determine the levels of job demands, job resources, personal resources, work engagement, performance and job crafting of a sample of private sector nurses. Additionally, the researcher aimed to highlight the results and managerial implications of the research findings and to recommend practical interventions to the privatised hospital group that could increase/decrease the respective constructs with the aim to increase nurse engagement. Reflecting on the objectives, the researcher would conclude that all of the research objectives of this study were met.

The research-initiating question asked: “Do the constructs in the Job Demands-Resources model account for significant variance in work engagement of nurses?” In general, the conclusion can be drawn that the latent variables depicted in Figure 2.2, explain significant

variance in work engagement of nurses. From the 11 original paths included in the JD-R model as hypothesised by Bakker (2011), seven out of the 11 paths, were found to be significant. It is noteworthy that three of the four non-significant paths were related to the Job Performance construct that was found to be a poor measurement. The two additional hypotheses that the researcher included were not significant, and they were also related to job performance. Therefore, the researcher concluded that the constructs explain significant variance in work engagement and that the results could possibly improve in a future study when a reliable instrument measures the Job Performance construct.

Returning to the postulations of the JD-R theory (Bakker & Demerouti, 2014), hypotheses 1 and 2 both support the cyclical interaction between job and personal resources. The one type of resources therefore has a significant positive effect on the other type of resources and together they build on each other to form resource caravans (Xanthopoulou et al., 2007). Despite the fact that the theory states that job resources predict work engagement, hypothesis 3 did not support this notion. In contrast, hypothesis 4 supported the supposition which states that personal resources have a significant positive effect on work engagement.

Hypothesis 5 tested the part of the JD-R theory (Bakker & Demerouti, 2014) that states that job demands moderate the relationship between job resources and work engagement. This moderation is thought to be positive, in other words, as job demands increase, the relationship between job resources and engagement is believed to strengthen. Although hypothesis 5 was found to be statistically significant, the moderation effect was found to be negative. This finding therefore is in direct contrast to what the theory states. From a critical point of view, the researcher would agree with the finding of this study. It seems realistic that decreasing job demands would enable employees to utilise the job resources in their environment more effectively and consequently be in a better position to feel engaged in their jobs. Similarly, increasing job demands would inhibit employees from accumulating job resources and consequently engage in their jobs. The finding of this study therefore seems more plausible than what the JD-R theory states. Hypothesis 6 supported the theory that job demands moderates the relationship between personal resources and work engagement. It is therefore plausible to assume that as job demands increase, employees draw from their sources of internal motivation to engage them in their work.

Hypotheses 7, 8, 9, 10 and 13 did not support the theory relating to the Job Performance construct. The researcher has already speculated as to why this might be the case. Hypothesis 11 was found to be statistically significant and therefore supports the JD-R theory (Bakker &

Demerouti, 2014) that job crafting behaviour encourages employees to accumulate job resources. Similarly, hypothesis 12 was also statistically significant and supports the notion that proactive job crafting empowers employees to build their personal resources.

5.4 LIMITATIONS AND RECOMMENDATIONS

Despite the contributions, this study had several limitations. Importantly, however, these limitations did not significantly undermine the results discussed in Chapter 4. However, these limitations provide guidelines on which future research endeavours can improve.

Firstly, although the sample of 311 nurses was satisfyingly extensive (the SEM model converged in LISREL), some scholars might express concern regarding the sample size in relation to the number of parameters that were estimated (Babbie & Mouton, 2001; Theron, 2014). Similarly, the low response rate of 19% and the fact that the sample consisted mainly of female, white nurses employed in the private sector might also be sources of concern. These factors limit the generalisability of the research findings to the wider South African context. It is therefore recommended that future studies attempt to procure a larger sample that is demographically more diverse and represents private and public sector nurses.

Secondly, the study relied on self-report data that was collected by means of a paper-copy questionnaire. Unfortunately, method bias (impression management) is a weakness associated with self-report questionnaires. Participants are able, to some extent, to respond in a way that would create a more favourable impression of themselves. Similarly, the exclusive use of self-report questionnaires can artificially inflate the correlations between predictors (Avey, 2014). It would be advised that future researchers obtain objective measures for latent variables (Reichard, Dollwet & Louw-Potgieter, 2014). However, objective measures have other disadvantages such as observational and egocentric bias that could influence the reliability and validity of measures.

The third limitation is associated with the use of an ex post facto research design. As was mentioned in Chapter 3, this design does not allow the researcher to influence the independent variables and consequently the researcher was not able to randomise the participants. Although the objectives of a study dictate the research design, future researchers could attempt to use an alternative design that is based on randomisation. The fourth limitation is also related to the research design. This study used a cross-sectional design that collected data at one point in time. Due to the fact that some of the variables are malleable in nature (e.g. personal resources and work engagement), it would be advised that future

researchers use a longitudinal design that collects data from participants at several points in time (Reichard et al., 2014). This will enable researcher to draw more definitive conclusions from the data, and to identify behavioural patterns over time.

Further, this study investigated predetermined variables that are included in the JD-R model. The researcher therefore did not investigate the inclusion of alternative variables. Future research could explore the possibility of including other variables in the JD-R model that make theoretical sense in explaining work engagement and job performance.

The sixth limitation is that the objective performance appraisal data that was used to operationalise the Job Performance construct was found to be unreliable and consequently influenced the construct's associated hypotheses. It is strongly advised that future researchers either use a standardised job performance measure that would yield reliable and valid results, or develop and test a job performance measure before commencing with the study.

Finally, the Trust and PsyCap-24 Self-Rated Version contained items that are reverse-scored. Reversed items are known to influence scale reliability (Görgens-Ekermans & Herbert, 2013). In this study, the reversed items were found to yield low inter-item correlations. Arguably, language proficiency of the participants played a role in their understanding of these reversed items, since the majority of the participants' first language was Afrikaans. It would be recommended that researchers rewrite these items in a positive way that would avoid reversed scoring, and subsequently test the reliability of these items before commencing with data collection.

5.5 CHAPTER SUMMARY

By testing the JD-R model in its entirety, and by exploring additional paths in the model, this study made a contribution to the theoretical framework of JD-R theory, work engagement, and employee well-being. The study also contributed to the understanding of work engagement of private sector nurses in the Western Cape. The reported research findings illustrated the impact that job demands, job resources, personal resources, and job crafting have on work engagement and job performance. These findings provided insight into how industrial psychologist, managers and the hospital group could address problems related to these variables, with the aim to increase work engagement and job performance.

In conclusion, this chapter provided potential managerial interventions to address problems that became evident from the statistical results. The results were discussed with reference to

the JD-R theory. Finally, limitations of the study were discussed and recommendations for future research were provided.

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APPENDIX A: ETHICAL CLEARANCE



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Approval Notice New Application

20-May-2013
Nell, Elzette E

Proposal #: **DESC_Nell2013**

Title: **A TEST OF THE JOB DEMANDS-RESOURCES MODEL FOR NURSES**

Dear Miss Elzette Nell,

Your DESC approved New Application received on 15-May-2013, was reviewed by members of the **Research Ethics Committee: Human Research (Humanities)** via Expedited review procedures on 17-May-2013 and was approved.

Please note the following information about your approved research proposal:

Proposal Approval Period: **17-May-2013 -16-May-2014**

Please take note of the general Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

Please remember to use your proposal number (**DESC_Nell2013**) on any documents or correspondence with the REC concerning your research proposal.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Also note that a progress report should be submitted to the Committee before the approval period has expired if a continuation is required. The Committee will then consider the continuation of the project for a further year (if necessary).

This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki and the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health). Annually a number of projects may be selected randomly for an external audit.

National Health Research Ethics Committee (NHREC) registration number REC-050411-032.

We wish you the best as you conduct your research.

If you have any questions or need further help, please contact the REC office at 0218839027.

Included Documents:

Informend consent
DESC form
Research proposal

Sincerely,

Susara Oberholzer
REC Coordinator
Research Ethics Committee: Human Research (Humanities)